ITW Dynatec®

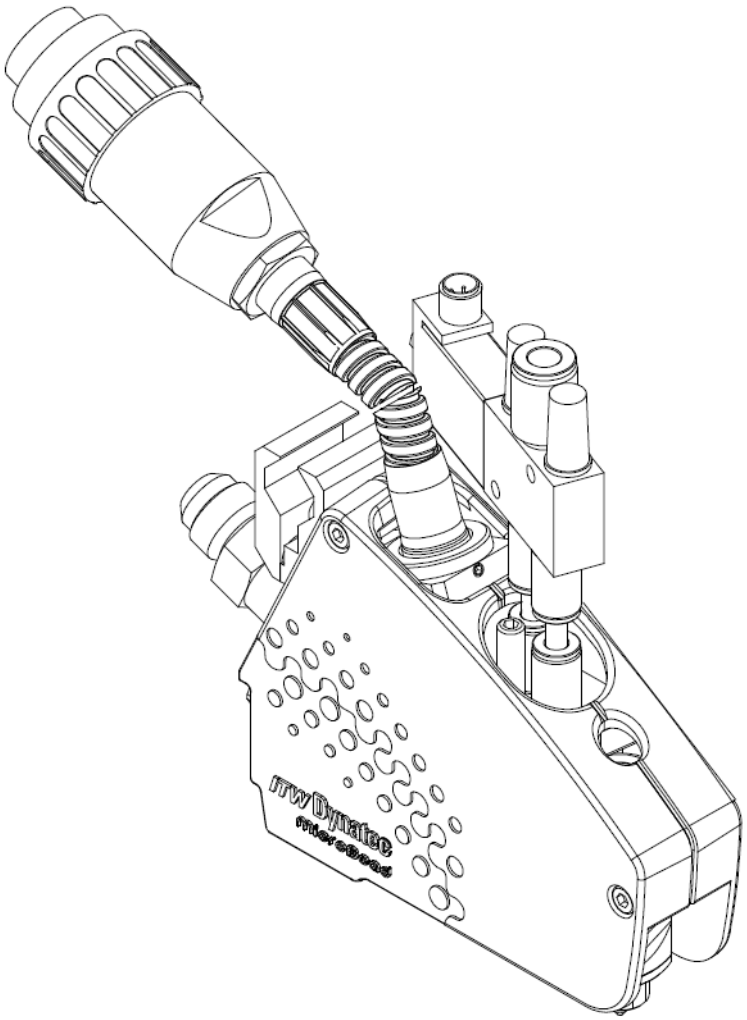
Adhesive Application Solutions | ISO 9001 certified

Dyna BF MicroBead Applicator

with Micro-Optima Module

Technical Documentation, No.40-66, Rev.6.23

English - Original instructions



ITW Dynatec
An Illinois Tool Works Company
www.itwdynatec.com

Information about this manual

Read all instructions before operating this equipment!

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE:
Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

NOTICE:
Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

ITW Dynatec Service Parts and Technical Service:

AMERICAS

ITW Dynatec
31 Volunteer Drive
Hendersonville, TN 37075
USA
Tel. +1.615.824.3634
info@itwdynatec.com
service@itwdynatec.com

EUROPE, MIDDLE EAST & AFRICA

ITW Dynatec
Industriestrasse 28
40822 Mettmann
Germany
Tel. +49.2104.915.0
info@itwdynatec.de
service@itwdynatec.de

ASIA PACIFIC

ITW Dynatec
No. 2 Anzhi Street,
SIP, Suzhou, 215122
China
Tel. +86.512.6289.0620
info@itwdynatec.cn
service@itwdynatec.cn

ITW Dynatec
Tsukimura Building 5th Floor
26-11, Nishikamata 7-chome
Ota-ku, Tokyo 144-0051,
Japan
Tel. +81.3.5703.5501
info@itwdynatec.co.jp
service@itwdynatec.co.jp

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Chapter 1
Declaration of Conformity

EC declaration of conformity

according to the Machinery Directive 2006/42/EC, Annex II 1. A

Original

The manufacturer bears the sole responsibility for issuing this declaration of conformity

ITW Dynatec

31 Volunteer Drive

TN 37075 Hendersonville

Person established in the Community authorised to compile the relevant technical documentation

Andreas Pahl

ITW Dynatec GmbH

Industriestraße 28

40822 Mettmann

Description and identification of the interchangeable equipment

Product / Article	BF MicroBead Applicator Head
Type	BF MicroBead
Project number	PRJ-2016-05-14-0002
Function	Applying adhesive to the substrate/elastic strand

It is expressly declared that the interchangeable equipment fulfils all relevant provisions of the following EU Directives or Regulations:

2006/42/EC	(Machinery Directive) Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1) Published in L 157/24 of 6/9/2006
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits Published in 2014/L 96/357 of 3/29/2014

Reference to the harmonised standards used, as referred to in Article 7 (2):

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, modified)
EN ISO 13850:2015	Safety of machinery - Emergency stop function - Principles for design (ISO 13850:2015)
EN ISO 13854:2019	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)

Hendersonville,3/21/2023

Place, Date

Signature
Rushton Heidi
VP/GM

Signature
Wallner Michael
Operations Manager EMEA & Asia

Chapter 2
Safety Instructions

2.1 General Considerations

- **All operators and service personnel must read and understand this manual before operating or servicing equipment.**
- **All maintenance and service on this equipment must be performed by trained technicians.**

Read and adhere to the manual!

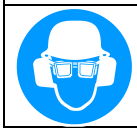
1. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional work.
2. Additional safety instructions and/ or symbols are located throughout this manual. They serve to warn maintenance personnel and operators about potentially hazardous situations.
3. Inspect the machine for unsafe conditions daily and replace all worn or defective parts.
4. Keep work area uncluttered and well lit. Remove all material or things not needed for the production from the workspace of the equipment!
5. All covers and guards must be in place before operating this equipment.
6. Subject to technical modifications without notice!
7. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.
8. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
9. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

2.2 Warning Labels

1. Read and obey all of the warning labels, signs and caution statements on the equipment.
2. Do not remove or deface any of the warning labels, signs and caution statements on the equipment.
3. Replace any warning labels, signs and caution statements which have been removed or defaced. Replacements are available from ITW Dynatec.

2.3 Safety Symbols in this Manual

Mandatory signs

	General mandatory sign
	Read and adhere to the documentation!
	Switch the unit voltage-free before working! Main switch OFF!
	Wear headgear, protective goggles and ear protection!

	Wear foot guard!
	Wear protective gloves!
	Wear protective clothing!

Warning signs

NOTE: The dangers and risks exist if the corresponding instructions are not heeded and the precautionary measures are not taken!

	**Caution, danger spot!** This sign points to possible dangers for life and physical condition or to possible risks for machine and material or to possible risks for environment. The word **"DANGER"** in addition with this points to possible dangers of life The words **"WARNING" and "CAUTION"** in addition with this sign point to possible risks of injury. The word **"ADVICE"** in addition with this sign points to possible risks for machine, material or environment.

	**Danger, high voltage!** This sign points to possible dangers for life and physical condition caused by electricity. **Risk of injury, mortal danger!**
	**Caution, hot surface!** This sign points to possible risks of burns. **Risk of Burns!**
	**Caution, high pressure!** This sign points to possible risks of injury caused by high pressure. **Risk of injury!**
	**Caution, rotating rolls!** This sign points to possible risks of injury caused by inrunning nip (at rolls). **Risk of injury!**

Prohibition signs

	**Fire danger!** **Smoking prohibited!**

	**Fire danger!** **Fire and open flames prohibited!**

2.4 Safe Installation and Operation

Read and adhere to the manual!

1. Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.

2. To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight bending radius turns and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing. Hoses must be spaced apart from each other, not making direct contact.

3. Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system clogging and pump damage.

4. When adhesive hand-held applicators or other movable applicators are used, never point them at yourself or at any other person. Never leave a hand-held applicator's trigger unlocked when not actually in use.

5. Do not operate the hopper or other system components without adhesive for more than 15 minutes if the temperature is 150 degrees C (300 degrees F) or more. To do so will cause charring of the residual adhesive.

6. Never activate the heads, hand-held applicators and/ or other application devices until the adhesive's temperature is within the operating range. Severe damage could result to internal parts and seals.

7. Never attempt to lift or move the unit when there is molten adhesive in the system.

8. In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.

9. Use the unit only as it is intended to.

10. Never let the unit run unattended.

11. Operate the unit only in a faultless and fully functional condition. Check and make sure that all safety devices work in proper form!

	**Smoking, fire and open flames prohibited! Fire danger!** Make absolutely sure that there is no smoking and no fire being lit in the work area!

2.5 Explosion/ Fire Hazard

1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

2.6 Use of PUR (Polyurethane) Adhesives

1. PUR adhesives emit fumes (MDI and TDI) that can be dangerous to anyone exposed to them. These fumes cannot be detected by the sense of smell. ITW Dynatec strongly recommends that a power-vented exhaust hood or system be installed over any PUR system.
2. Consult with your adhesive manufacturer for specifics about required ventilation.

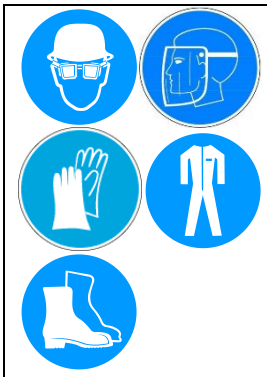
CAUTION

Because of the nature of PUR adhesives to strongly bond in the presence of moisture, care must be taken to prevent them from curing inside ITW Dynatec equipment.

If PUR adhesive solidifies in a unit, the unit must be replaced. Always purge old PUR adhesive from the system per your adhesive manufacturer's instructions and time table.

ALLOWING PUR ADHESIVE TO CURE IN A UNIT OR ITS COMPONENTS VOIDS ITW DYNATEC'S WARRANTY.

2.7 Eye Protection & Protective Clothing



WARNING
EYE PROTECTION & PROTECTIVE CLOTHING REQUIRED

1. It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!
2. Wear a face shield conforming to ANSI Z87.1 or safety glasses with side shields which conform to ANSI Z87.1 or EN166.
3. Failure to wear a face shield or safety glasses could result in severe eye injury.
4. It is important to protect yourself from potential burns when working around hot melt adhesive equipment.
5. Wear heat-resistant protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.
6. Always wear steel-reinforced safety shoes.

2.8 Electrical

DANGER HIGH VOLTAGE

1. Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on.
2. Disconnect, lockout and tag external electrical power before removing protective panels.
3. A secure connection to a reliable earth ground is essential for safe operation.
4. An electrical disconnect switch with lockout capability must be provided in the line ahead of the unit. Wiring used to supply electrical power must be installed by a qualified electrician.
5. Notify the maintenance personnel immediately, if cables are damaged. Provide for exchanging the defective components immediately.

2.9 Lockout/ Tagout

Switch the unit voltage-free before working!
Main switch OFF!

1. Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/tagout guidelines.
2. Be familiar with all lockout sources on the equipment.
3. Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute after removing power before servicing electrical capacitors.

2.10 High Temperatures

WARNING HOT SURFACE

1. Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.
2. Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

2.11 High Pressure

WARNING HIGH PRESSURE PRESENT

1. To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.

2. To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (i.e. trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.

3. IMPORTANT NOTE: Even when a system's pressure gauge reads “0” psi, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.

4. Either of the two High Pressure symbols shown may be used on ITW Dynatec equipment.

5. Keep the given operating pressure.

6. Notify the maintenance personnel immediately, if hoses or components are damaged. Provide for exchanging the defective components immediately.

2.12 Protective Covers

WARNING
DO NOT OPERATE WITHOUT GUARDS IN PLACE

1. Keep all guards in place!

2. To avoid personal injury, do not operate the application system without all covers, panels and safety guards properly installed.

3. Never get your extremities and/or objects into the danger area of the unit. Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

2.13 Servicing, maintenance

1. Only trained and qualified personnel are to operate and service this equipment.
2. Before any service work disconnect the external power supply and the pressure air supply!
3. Never service or clean equipment while it is in motion. Shut off the equipment and lock out all input power at the source before attempting any maintenance.
4. Follow the maintenance and service instructions in the manual.
5. Keep the maintenance rates given in this documentation!
6. Any defects in the equipment that impact safe operation have to be repaired immediately.
7. Check screws that have been loosened during the repair or maintenance, if they are tight again.
8. Replace the air hoses in preventive maintenance regularly, even if they have got no viewable damages! Adhere to the manufacturers` instructions!
9. Never clean control cabinets or other houses of electrical equipment with a jet of water!
10. Adhere to the current safety data sheet of the manufacturer when using hazardous materials (cleaning agents, etc.)!

2.14 Cleaning Recommendation

- Filters are disposable and need to be replaced regularly. DO NOT boil in mineral oil, solvents or water; the sealant used in filter assembly may become brittle and very likely disintegrate when boiled.
- When cleaning other components in mineral oil, remove all non-metallic items (O-rings, seals, filter cartridge, etc.) away from chemicals before components are subjected to hot mineral oil cleaning.
- If there is not a specific rebuild kit available or directions on how to clean a part, please treat it as a replacement item and do not attempt to clean/rebuild.

2.15 Secure transport

1. Examine the entire unit immediately after receipt, if it has been delivered in perfect condition.
2. Let damages in transit certify by the carrier and announce them immediately to ITW Dynatec.
3. Use only lifting devices that are suitable for the weight and the dimensions of the equipment (see drawing of the equipment).
4. The unit has to be transported upright and horizontally!
5. The unit has to cool down to room temperature before packaged and transported.

2.16 Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

1. Burns caused by hot melt adhesive must be treated at a burn center. Provide the burn center's staff a copy of the adhesive's M.S.D.S. to expedite treatment.

2. Cool burnt parts immediately!

3. Do not remove adhesive forcibly from the skin!

4. Care must be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard. Even when first solidified, they are still hot and can cause severe burns.

5. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

6. Always have first-aid information and supplies available.

7. Call a physician and/or an emergency medical technician immediately. Let the burns medicate by a medic immediately.

2.17 Measures in case of fire

1. Please heed that not covered hot parts of the engine and molten hot melt may cause heavy burns. Risk of burns!

2. Work very carefully with molten hot melt. Keep in mind, that already jelled hot melt can be very hot, too.

3. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body!

Measures in case of fire:

Wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

Firefighting - burning hot melt:

Please keep attention to the safety data sheet given by the adhesive manufacturer.

EXTINGUISH FIRE

Appropriate extinguishing agents:
Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO_2), Dry sand.

For safety reasons not appropriate extinguishing agents: None.

Firefighting - burning electrical equipment:

Appropriate extinguishing agents:
Carbon dioxide (CO_2), Dry powder.

2.18 Keep attention to environmental protection standards

1. When working on or with the unit, the legal obligations for waste avoidance and the duly recycling / disposals have to be fulfilled.

2. Keep attention, that during installations, repairs or maintenance matters hazardous to water, like adhesive / adhesive scrap, lubricating grease or oil, hydraulic oil, coolant and cleaner containing solvent do not pollute the ground or get into the canalization!

3. These matters have to be caught, kept, transported and disposed in appropriate reservoirs!

4. Dispose these matters according to the international, national and regional regulations.

Chapter 3
Description and Technical Specs

3.1 Applicable Safety Regulations

3.1.1 Intended Use

The Dyna BF MicroBead Applicator may be used only to apply suitable materials, e.g. adhesives. When in doubt, seek permission from ITW Dynatec.

The adhesive will be melted in an ITW Dynatec's Adhesive Supply Unit (ASU) and supplied to the Applicator, which applies the adhesive to the substrate.

If the unit is not used in accordance with this regulation, a safe operation cannot be guaranteed.

The operator - and not ITW Dynatec - is liable for all personal injury or property damages resulting from unintended use!

Intended use includes, that you
- read this documentation,
- heed all given warnings and safety instructions, and
- do all maintenance within the given maintenance rates.

Any other use is considered to be unintended.

3.1.2 Unintended Use, Examples

The Applicator may not be used under the following conditions:
- In defective condition.
- In a potentially explosive atmosphere.
- With unsuitable operating/processing materials.
- When the values stated under Specifications are not complied with.

The Applicator may not be used to process the following materials:
- Toxic, explosive and easily flammable materials.
- Erosive and corrosive materials.
- Food products.

3.1.3 Residual Risks

In the design of the Applicator, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided.

Personnel must be aware of the following:

- Risk of burns from hot material.
- Risk of burns from hot Adhesive Supply Unit and Applicator components.
- Risk of burns when conducting maintenance and repair work for which the system must be heated up.
- Risk of burns when attaching and removing heated hoses.
- Material fumes can be hazardous. Avoid inhalation. If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the system.
- Risk of pinching parts of the body at running parts of the unit (pumps, motors, rolls or others).
- The safety valves may malfunction due to hardened or charred material.

3.1.4 Technical changes

Any kind of technical changes having impact to the security or the operational liability of the system should only be done by written agreement of ITW Dynatec. Suchlike changes made without given a corresponding written agreement will lead to immediate exclusion of liability granted by ITW Dynatec for all direct and indirect subsequent damages.

3.1.5 Using foreign components

ITW Dynatec takes no responsibility for consequential damages caused by using foreign components or controllers that have not been provided or installed by ITW Dynatec.

ITW Dynatec does not guarantee that foreign components or controllers used by the operating company are compatible to the ITW Dynatec-system.

3.1.6 Setting-up operation

We recommend asking for an ITW Dynatec-service technician for the setting-up operation, to ensure a functioning system. Let yourself and the people working with or working on the system be introduced to the system on this occasion.
ITW Dynatec takes no responsibility for damages or faults caused by any untrained personal.

3.2 Description Dyna BF MicrBead Applicator

3.2.1 Description

ITW Dynatec's BF MicroBead Applicator is an air-operated, single-nozzle hot melt adhesive applicator assembly with an integrated filter cartridge which prevents particulate matter from obstructing flow through the head. It is used with intermittent pressure and constant pressure hot melt Adhesive Supply Units (ASUs).

Each applicator features one or two Micro Optima module mounted to a single service block. The module is "optimized" (self-cleaning). It's nozzle is integrated into the module, making it maintenance free. The Micro Optima module is designed for high speed/ high pressure (above 400 psi/ 27 bar) applications where a sharp cutoff is necessary.

The module is opened and closed by air pressure. The rate of adhesive flow from the applicator is determined by the adhesive pressure applied by the ASU's pump, the size of the nozzle orifice and the characteristics of the adhesive.

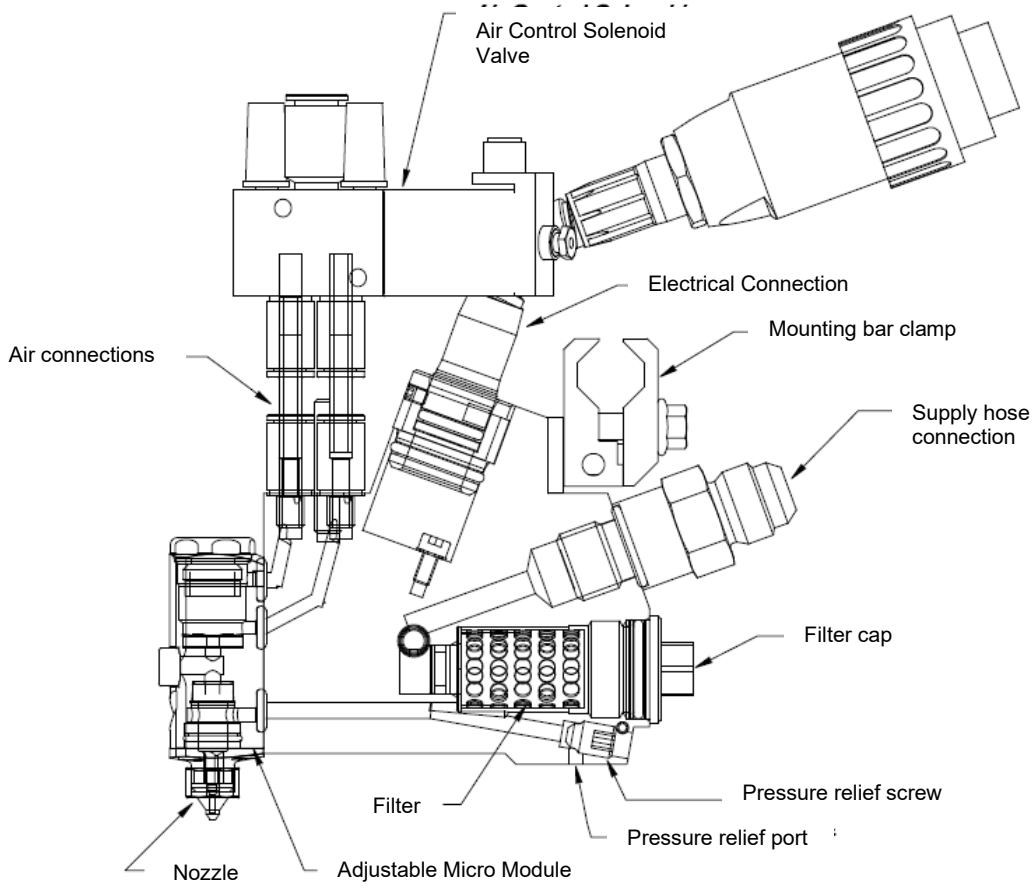
The applicator is heated by replaceable cartridge heating elements which are controlled by an integrated RTD sensor and electronic control.

As seen in the illustration below, a module is mounted onto a service block. A piston inside the module is pneumatically triggered by a solenoid air valve, which allows adhesive to flow through a valve within the module.

The heated adhesive supply hose is connected at the rear of the service block. A variety of optional 45 and 90 degree fittings allows positioning flexibility.
Adhesive flows from the hose into and through the channels within the block to the module. Air pressure opens the adhesive module, allowing adhesive to flow through the nozzle when the valve is open.

Operating air connections, from the solenoid valve, and electrical connections are made at the top of the service block.

The applicator is configured for ITW Dynatec's DynaControl or Dynamini controller. Both 120 V and 240 V configurations are available. Water-tight option is available.



3.2.2 Technical Data

Environmental:

Storage/ shipping temperature ..... -40°C to 70°C (-40°F to 158°F)
Ambient service temperature ..... 0°C to 50°C (32°F to 122°F)
Noise emission ..... The acoustic pressure level measured according to EN 13023 does not exceed the value of 80 dB (A).

Physical:

Dimensions ..... see dimensional layouts on following pages
Weight:
- with one module ..... 0.6 kg (1.32 lb.)
- with two modules ..... 0.95 kg (2.09 lb.)

Mounting ..... Integrated clamp-mount for 1/2" (12 to 13 mm) rod
Material ..... Aluminum with stainless steel screws

Performance:

Operating temperature range ..... 38°C to 218°C (100°F to 425°F)
Warm-up time ..... 15 minutes for cold start/ 1 minute for module change only
Cycle rate ..... 5000 cycles/ minute maximum
Adhesive viscosity ..... 100 to 15000 mPa. sec. (100 to 15000 centipoise)
Adhesive pressure range ..... 68 bar maximum (1000 psi maximum)

Air requirements:

Air pressure range ..... 2.1 to 6.2 bar (30 to 90 psi)

Electrical:

Supply voltage ..... 120 VAC or 240 VAC/ 1p/ 50-60 Hz

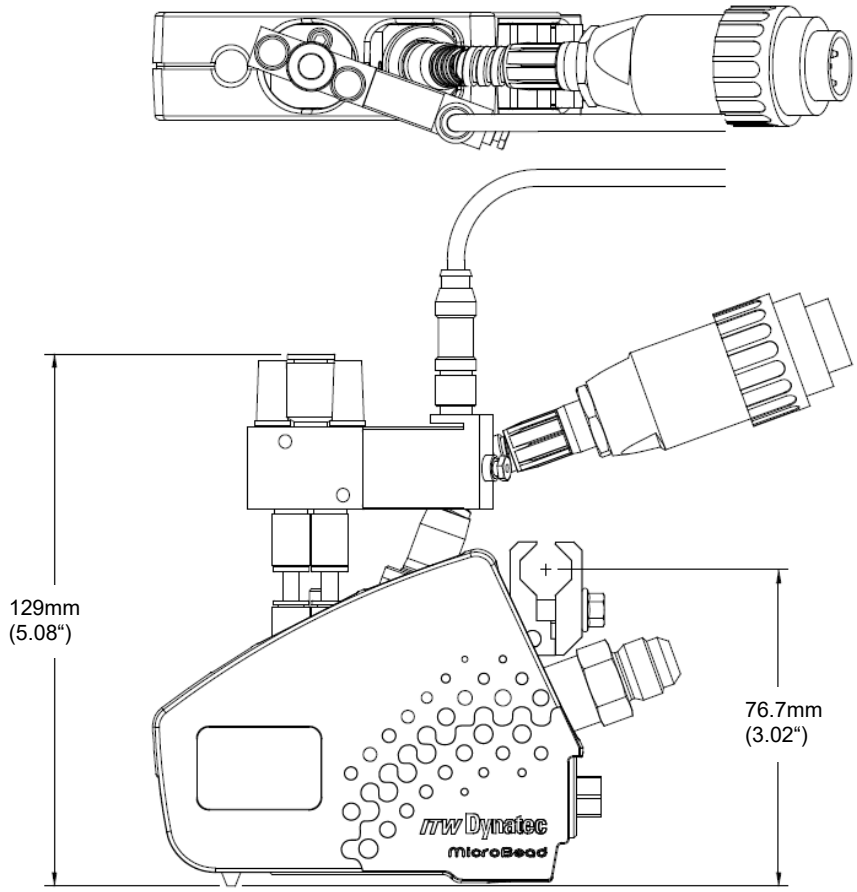
Power requirements:

- 1-port 120VAC ..... 125 W
- 2-port 120VAC ..... 200 W
- 1-port 240VAC ..... 155 W
- 2-port 240VAC ..... 200 W

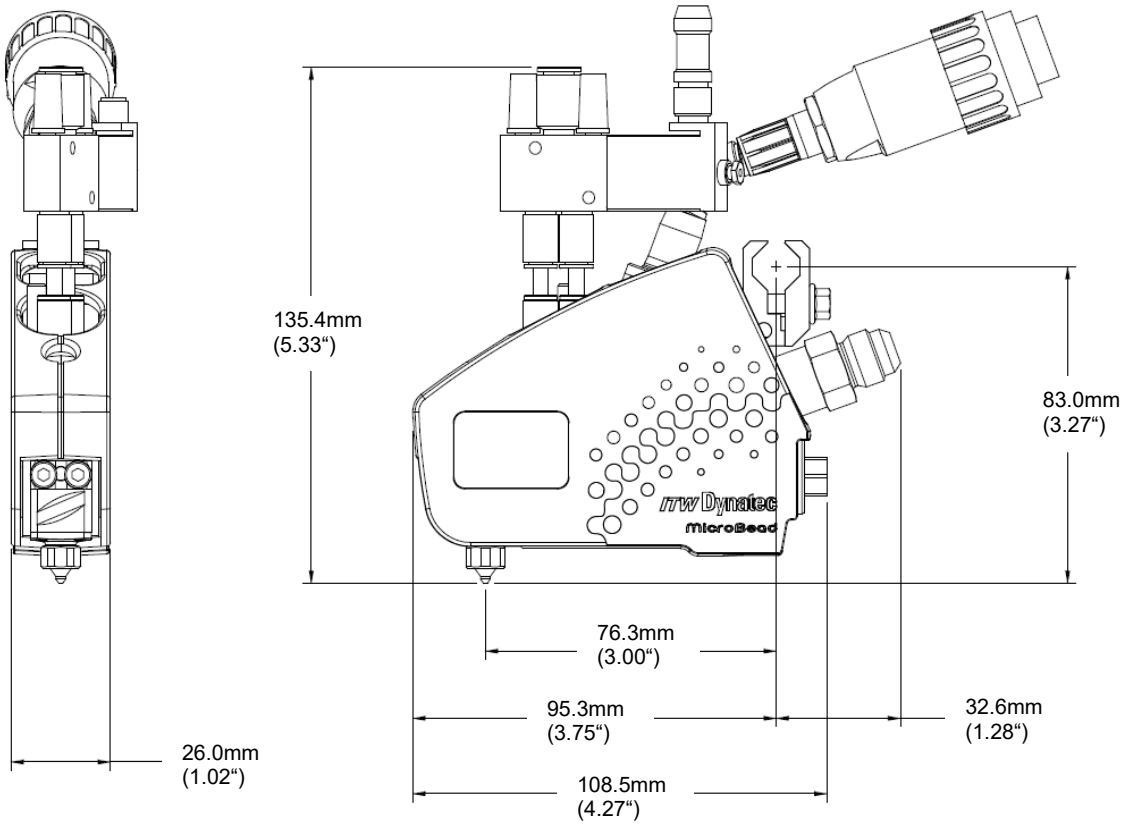
CE Mark ..... yes

3.2.3 Dimensions

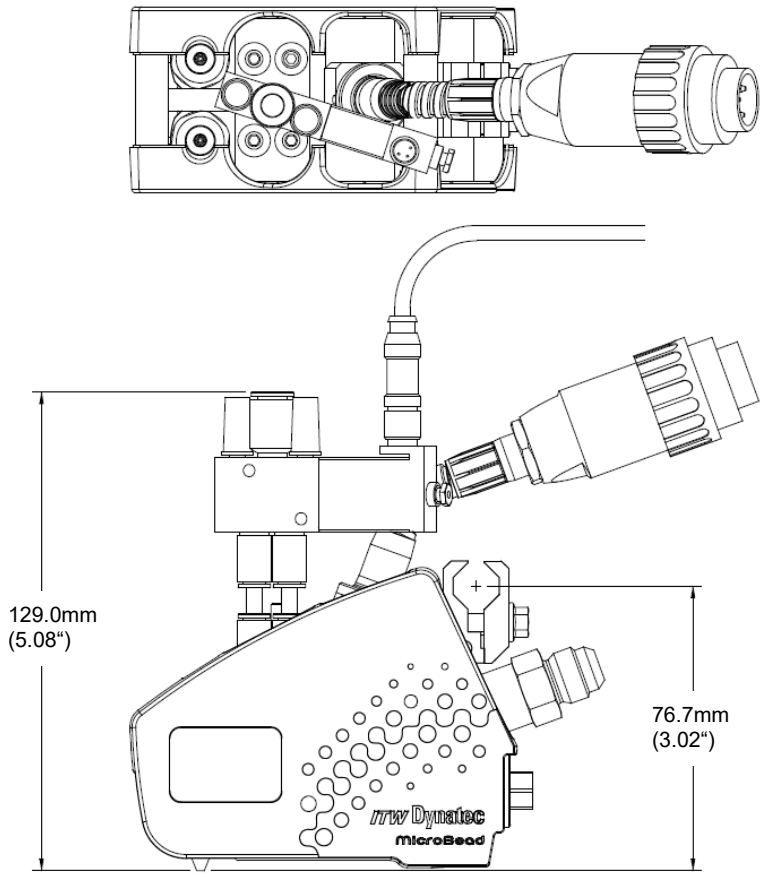
BF MicroBead Applicator with 1 Micro Optima Module with integrated nozzle:



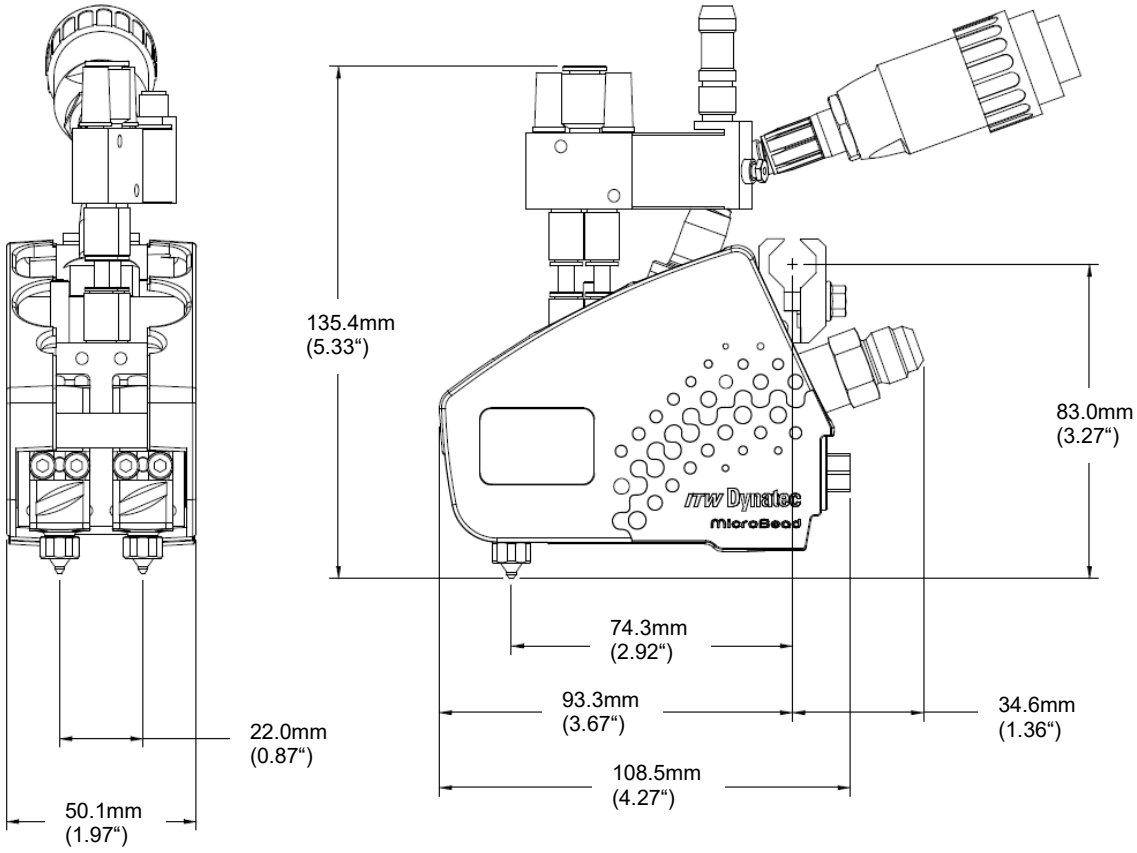
BF MicroBead Applicator with 1 Adjustable Micro Optima Module with interchangeable nozzle:



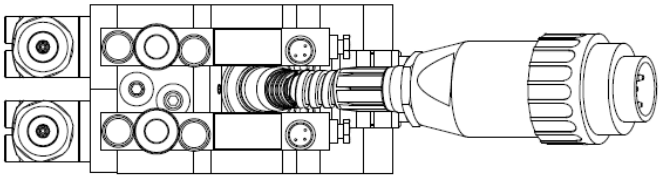
BF MicroBead Applicator with 2 Micro Optima Modules with integrated nozzle, with standard mount:

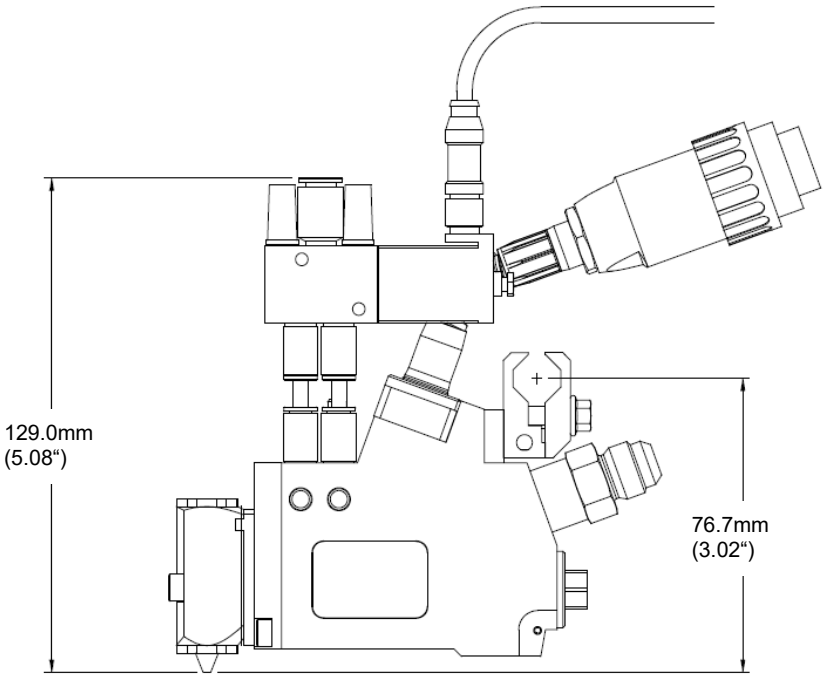


BF MicroBead Applicator with 2 Adjustable Micro Optima Modules with interchangeable nozzle, with standard mount:



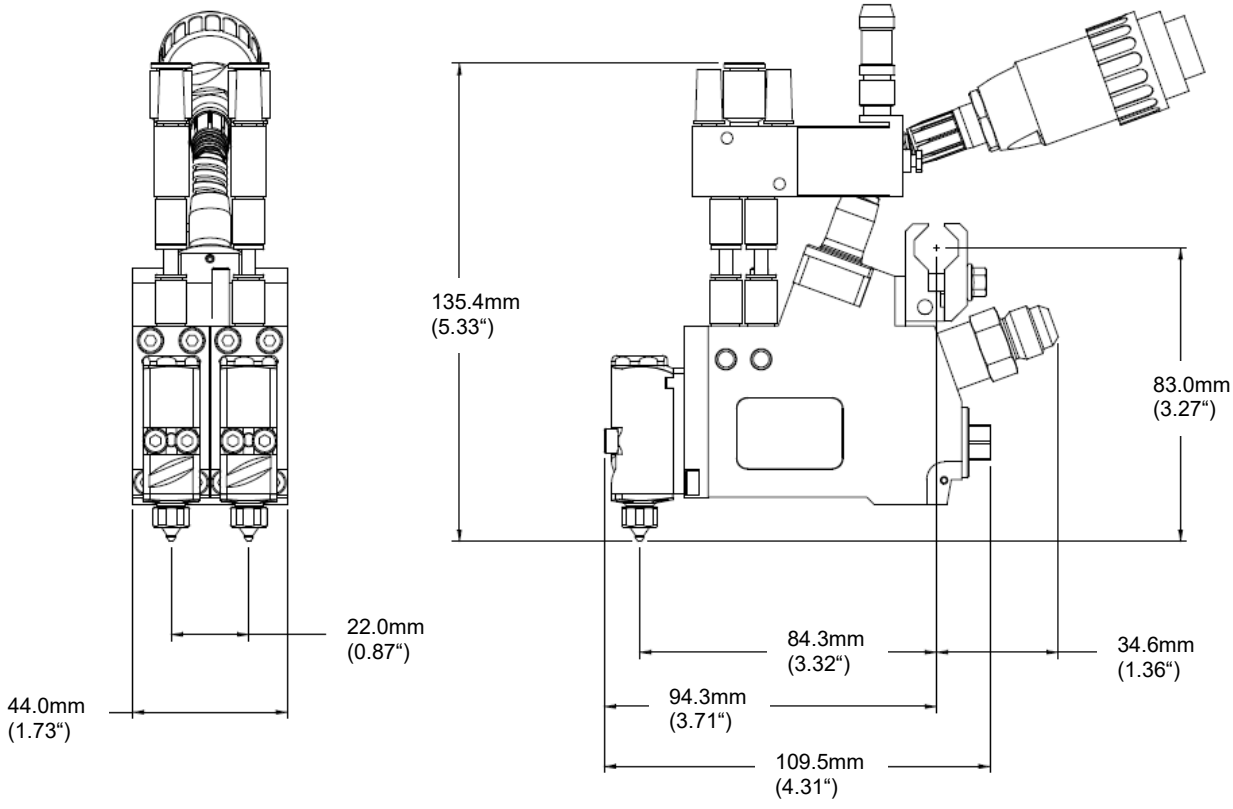
BF MicroBead Applicator with 2 Micro Optima Modules with integrated nozzle, with pivot mount:





Note:
The cover kit for the 2 module applicator is not able to be installed if the applicator is equipped with Pivot option.

BF MicroBead Applicator with 2 Adjustable Micro Optima Modules with interchangeable nozzle, with pivot mount:



3.2.4 Model Designation Guide

MB	XXX	X	X	X	X	X	X	X	X	X	X
Example:	MB	20	1	M	1	S	1	C	A	D	1	S

Dyna BF MicroBead Applicator

Service block length:
20 = 20mm
44 = 44mm

Number of modules
1 or 2

Module Type:
M = Micro Optima

#	Micro Optima Module US PN	Ref. no.	Nozzle-orifice-Ø	Micro Optima Module EMEA PN
1 =	7020	1	.008“ (0.21mm)	50.07020.100
2 =	7021	2	.008“ (0.21mm)	50.07021.100
3 =	7022	3	.009“ (0.24mm)	50.07022.100
4 =	7023	4	.011“ (0.29mm)	50.07023.100
5 =	7024	5	.013“ (0.33mm)	50.07024.100
6 =	7025	6	.015“ (0.38mm)	50.07025.100
7 =	7026	7	.018“ (0.46mm)	50.07026.100
8 =	7027	8	.020“ (0.52mm)	50.07027.100
9 =	7028	9	.024“ (0.62mm)	50.07028.100
T =	7050 (EMEA PN 50.M7050.100) Adjustable Micro Optima Module for interchangeable nozzle (see Ch.8 Ordering Guide for nozzle options).			
Z =	no module			

Cable Type:
S = Standard (DCL & N available)
W = Water-resistant (DCL & N Upgrade)

Voltage:
1 = 120 VAC
2 = 240 VAC

Control Scheme:
D = DynaControl (PT100 RTD)
N = N Upgrade (Ni120 RTD)

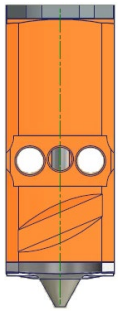
Solenoid Control:
A = Flying leads
B = DPC/ TPC controller
C = DY2008 controller

Program Air:
C = Single Control (1 solenoid)
S = Separate Control (2 solenoids)

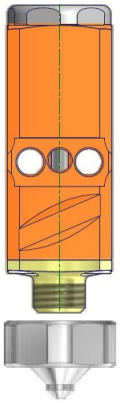
Filtration:
1 = 100 mesh
2 = 150 mesh
3 = 200 mesh

Module Mounting:
S = Standard
P = Pivot

Typical Micro Optima Module (optimized with integrated nozzle):



Typical Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) for interchangeable nozzle:



Interchangeable nozzle (example picture)

Chapter 4
Installation and Start-Up

CAUTION

- Before installation, please read this documentation carefully.
- Pay attention to all the installation and connecting advices.
- Heed all safety instructions mentioned in Chapter 2.
- All installation and start-up procedures must be performed by qualified, trained technicians.

4.1 Conditions and requirements for installation and start-up

Place requirement

Install the Applicator in the machine so that the operator is able to work on it from all sides, for e.g. for adjusting, preparing, maintaining, repairing, cleaning, etc.
See dimensions in Chapter 3.

Electrical connection

- Provide necessary electrical connection. See electrical schematics.
- The unit has to be connected according to the schematics. Heed the regulations of the VDE or local power supply organization in all cases!
- Never connect or disconnect plug-and-socket connections under load!
- Incoming electrical power and temperature control is supplied through the flexible cable exiting the adhesive supply hose cuff. The applicator has a circular, plastic connector which mates with the connector attached to this cable.

Pneumatic connection

Provide necessary pneumatic connection:

- The required air pressure is 6 bar.
- **CAUTION: In any case the air has to be clean and dry!** See advices under “Quality of compressed air” on next page.
- Incoming (operating) air is supplied through a solenoid valve. It is controlled by a four-way solenoid valve and must be separately regulated and maintained at a pressure between 4.8 to 6.2 bar (70 to 90 psi). Air lines from the solenoid valve must be 6.4mm (1/4”) OD, PTFE material. An air line adapter kit (PN 117706) is provided with each applicator to enable the use of 1/4 inch (of PTFE, Nylon or PE material) in place of 6mm PTFE air line.
- Connect a compressed-air supply hose of DN8 at least to the Applicator.
- Please heed that units with high air demand may not be used at the same time with the same air supply.

Mounting advices

ADVICES

- Check all screw connections at the unit and retighten if necessary.
- Lay the cables and heated hoses so that no risk or least possible risk of stumbling occurs.

4.1.1 Quality of compressed Air

CAUTION

- **In any case, the air has to be clean and dry!**
- **The min. requirement for compressed air supply to solenoids to control automatic Applicators is ISO 8573-1:2010 class 2:4:3.**
- **We recommend installing the ITW Dynatec's Air Filter and Regulator Kit PN 100055 (see Appendix).**

Compressed air quality classes according to ISO 8573-1:2010 class 2:4:3:

ISO 8573-1: 2010	Solid particles				Water		Oil
Class	Maximum number of particles per m³			Mass concentration	Vapor pressure dew point	Liquid	Total oil content (liquid, aerosol and mist)
	0.1-0.5 µm	0.5-1 µm	1-5 µm	mg/m³	°C	g/m³	mg/m³
0	As stipulated by the equipment user, stricter requirements than class 1.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	0.01
2	**≤ 400,000**	**≤ 6,000**	**≤ 100**	**-**	≤ -40	-	0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	**1**
4	-	-	≤ 10,000	-	**≤ +3**	-	5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	≤ 5	≤ +10	-	-
7	-	-	-	5-10	-	≤ 0.5	-
8	-	-	-	-	-	0.5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 10

4.2 Advices for start-up

ADVICE

Start with start-up operation only if

- the functioning of the unit is known, and
- the unit installation for start-up has been done according to the details given in the previous chapter. That means all unit components are operable.

Read the documentation thoroughly to avoid breakdowns caused by faulty handling.

We recommend asking for an ITW Dynatec-service technician for the start-up operation, to ensure a functioning unit. Let yourself and the people working with or working on the unit be introduced to the unit on this occasion.

ITW Dynatec takes no responsibility for damages or faults caused by any untrained personnel.

Heed all safety instructions mentioned in chapter 2.

Allow only skilled expert staff to do the start-up operation!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing when working on or with the unit. Risk of burns and risk of injury!

Risk of electric shocks! Risk of injury, Mortal danger!

The unit components are getting very hot during operation! Risk of burns!

The adhesive is very hot and pressurized! Risk of burns and risk of injury! At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!

CAUTION

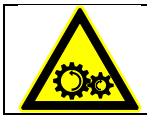
During operating the unit, heed the following:

- Heed all safety instructions mentioned in chapter 2.
- Set the working temperatures strictly within the temperature range given by the adhesive manufacturer. Do not exceed this temperature range.
- Switch the unit off during longer production breaks.
- Switch the unit to standby during shorter production breaks.
- Avoid voltage fluctuation.
- The air supply has to be clean and dry.
- In case of an emergency or exceptional incident, press the emergency stop button in order to stop the unit quickly.

The unit is ready for operation, when

- all temperatures are within the tolerances and
- all motors are switched on.

Risk of stumbling on cables and heated hoses!



Keep your hands away from running parts of the unit (pumps, motors, rolls or others).

4.3 Installation and Start-Up Instructions

CAUTION

- All work on or with this unit is only permitted for skilled personnel!
- Pay attention to the electrical schematics!
- Clean and dry air and air pressure of 6 bar to the applicator solenoids is required.
- All heating elements have to be mounted and operated secured and according to the valid regulations.

WARNING

- While installing the Applicator, use an appropriate protection device to avoid unintended contact with heated parts and with spilling out hot adhesive. The protection device has to prevent also the operator against not reaching into the adhesive application and against injuring.
- Risk of burns and risk of injury!

NOTES:

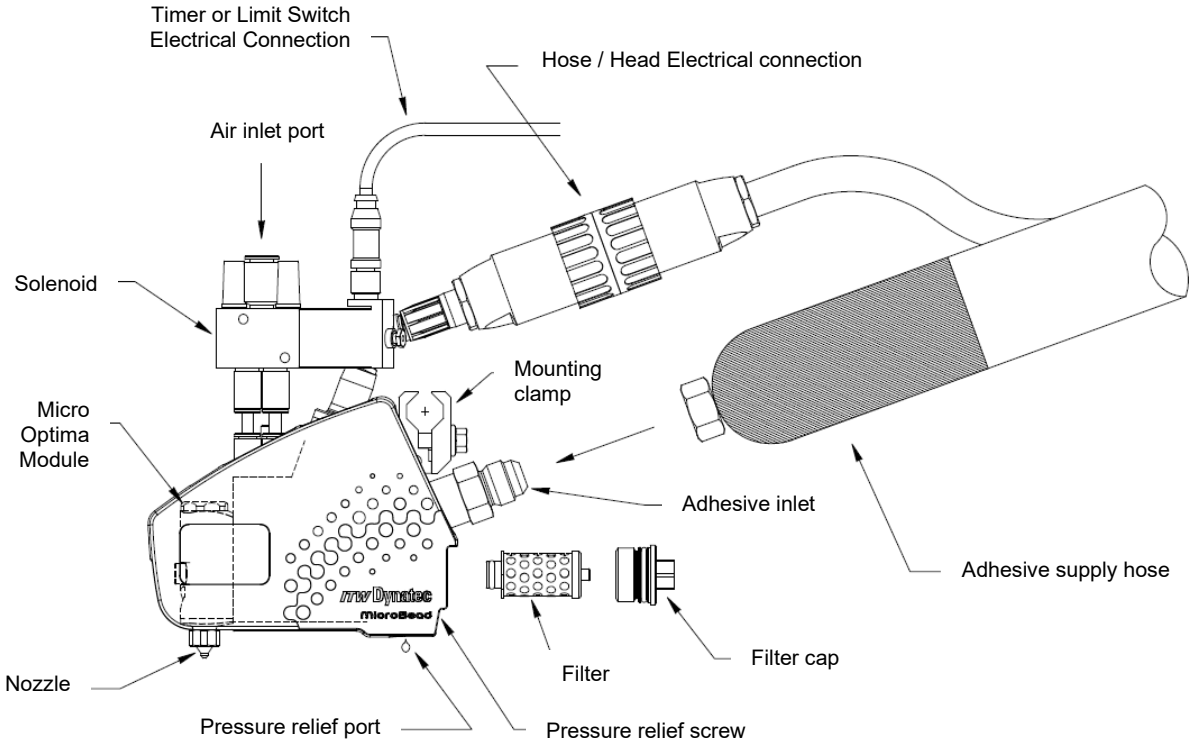
- The applicator has been tested at the factory and is ready for installation and operation.

- Dyna BF MicroBead applicators require a separate 4-way solenoid valve for each applicator. The 4-way valves must be mounted so that the air lines to each applicator are as close to the same length as practical.

- The modular applicator has a very high speed capability, so to take advantage of this, the solenoid valves must be located as close to the applicators as possible to keep applicator air lines short.
  NOTE: air lines and fittings must be capable of withstanding temperatures up to 218°C (425°F.)

- ITW Dynatec supplies Air Filter and Regulator Kit (PN 100055) to be used with air-operated applicators (see the Air Filter and Regulator Kit in the appendix of this manual).

- Applicator control solenoid valves may be controlled by timers or limit switches which sense the position of the package or object to which adhesive is being applied. Switches must be mounted on moveable brackets to provide adjustment for proper location of adhesive application.



Installation Diagram

Installation:

NOTE: See the installation diagram above for location of the components referred to in the following section.

1. The applicator must be supported from brackets that permit lateral and vertical adjustments. Mount the applicator on a 12mm to 13mm (1/2”) rod or bracketry using the clamp provided.
   Allow access to the filter.
   Be sure that the “weep” hole (the drain hole in the middle) on the module is visible for periodic inspection.

2. Before making the adhesive connection to the applicator, align the adhesive supply hose with its electrical connector oriented in relation to the electrical connector on the top of the applicator.
   Connect the swivel fitting of the hot melt hose to the male fitting on the service block. When tightening the hose fitting, hold the hose cuff to prevent the hose core from rotating.

3. Make the electrical connection from the hose to the applicator by connecting the female connector of the hose to the male connector of the applicator.

4. When connecting the air lines to the applicator, the air line which has air pressure to the module when the 4-way solenoid is OFF is the closing air line (marked “B” or “2” on the solenoid air valve). This line connects to the “close” air fitting on the applicator. The other air line is connected to the “open” air port on the air valve. The “A” (or “1”) air line has pressure when the solenoid is ON (open). This line can be checked by loosening the air line after the system has been pressurized.
   The air line closest to the module is always the closed/ OFF line.

CAUTION

- **Do not use lubricating oil with the air supply as applicators are lubricated at the factory and do not require lubrication when used in production.**
- **Where oil is present in the air supply, an Air Filter and Regulator Kit (Dynatec PN 100055) must be installed between the standard air regulator/ filter and the applicator.**

Start-up:

NOTE: This is a generic start-up. The customers may have different ways to start-up their unit.

1. Check the complete unit and the traverse paths for safety. Fix visible damages immediately.
2. Before switching the unit on, make sure that the starting unit could hurt no one!
3. Remove all material or other things not needed for the production from the workspace of the unit!
4. Check and make sure that all safety devices are working in proper form!
5. Switch on the system electrically and pneumatically.

   When operating temperatures for adhesive, tank, material hoses and Applicators have been reached, purging can begin.

   Permit the applicator to warm up at least 15 minutes (1 minute for module change) before reading temperature.
   It is advisable to check the temperature of the applicator. This can be done through the temperature readout of the adhesive supply unit.
   Surface temperature may be checked with a separate pyrometer and surface probe or with a dial thermometer.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- During the purging procedure, hot adhesive can come out of the applicator under high pressure.
- Hot adhesive/ oil comes out of the Applicator/ hoses!
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

6. Place a heat resistant container under the module to collect the material that drains from the applicator.
   Manually open the solenoid by pushing (with a small screwdriver or other tool) the purge button located on the solenoid coil.
   Continue to hold in the purge button until all air and oil have drained and only adhesive flows from the module.

7. Orient the nozzle tip so it points toward the substrate.
   The applicator is ready for operation.

4.4 Shutdown

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- Hot adhesive/ oil comes out of the Applicator/ hoses!
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

Removing dirt:

ADVICE

Remove dirt from Adhesive Supply Unit and Applicator immediately.

Wooden scrapers, lint-free cloth with cleaner **may only be used** for cleaning.

Metallic scrapers or other tools made from steel, like knife or blades, **may not be used** under any circumstances.

CAUTION

PUR-adhesives react with air humidity. To avoid blocked nozzles or Applicators, these parts have to be protected airproof with PUR cleaner immediately after production stop or the whole unit must be purged with PUR cleaner.

Nozzles could be protected e.g. with protection caps filled with PUR-cleaner, mounted immediately after production stop.

Temporary Shutdown:

1. Switch the unit voltage-free and pressureless.
2. Release adhesive remains from hose and Applicator, which is to be disassembled.
3. Release remaining pressure from the unit.
4. Disconnect power supply lines.
5. Dismount hose from Adhesive Supply Unit and Applicator and clean it.
6. Pack components in a corrosion-proof manner.
7. Secure hose and Applicator and store in a safe place.

Continuous Shutdown and Waste Disposal

1. Switch the unit voltage-free and pressureless.
2. Release adhesive remains from hose and Applicator, which is to be disassembled.
3. Release remaining pressure from the unit.
4. Disconnect power supply lines.
5. Dismount hose from Adhesive Supply Unit and Applicator.
6. Disassemble components into mechanical and electrical assemblies.
7. Dispose of components.

Chapter 5
Maintenance and Repair Notes

5.1 Security advices for maintenance and repair

Heed all security advices given in Chapter 2.

Use only original parts from ITW Dynatec, otherwise ITW Dynatec's warranty is void!

Maintenance and repair work is only permitted for skilled personnel!

Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing that cover all vulnerable parts of the body while working on the heated unit! Risk of injury or heavy burns!

High Voltage! Risk of injury and mortal danger!

- All electrical connections must be made by qualified electrical personnel.
- Care must be taken to assure proper grounding prior to any disassembly.
- Lockout and tag the electrical sources as required.
- Make sure there is no electrical power on the leads you will be connecting.
- When covers are removed, high voltage sources create an electrocution hazard.
- Wear appropriate safety equipment when working with high voltage sources.

Parts and surfaces of the unit get very hot. High temperatures! Risk of heavy burns!

High adhesive temperature and adhesive pressure! Risk of injury or heavy burns!
Always assume that the system is under pressure, proceed with caution.

Keep a cool-pack, or bucket of clean water near the work area.

Place a heat-resistant catchment container/underlay under the components. Hot adhesive may come out.

CAUTION: At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!

CAUTION: Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage surfaces! Do not scratch above them with sharp-edged tools, otherwise the components will get leaky and inoperable!

All maintenance and repair work has to be done at working temperature, except as noted otherwise. Else there is a risk of damaging the unit components!

Before any service work disconnect the external power supply and switch the unit voltage-free:

1. ,Switch off the main switch and the controller.
2. Disconnect the power supply respectively remove the plug / cable.
3. Guard the unit against unauthorized restarting!

Before any service work the adhesive pressure must be relieved throughout the system. Switch the unit pressureless:

1. Disconnect the pressure air supply.
2. Turn the pressure regulator to zero bar, if necessary. Wait approximately 1 minute until the pressure is relieved.
3. Manually open the solenoid on applicator by pushing (with a small screwdriver or other tool) the purge button located on the solenoid coil. Continue to hold in the purge button until all air and adhesive (pressure) have drained from the module.

5.1.1 Re-Assembly Procedures and General Cautions

Unless noted, the re-assembly is simply the reverse sequence of the disassembly procedures. However, the following “cautions” must be followed (whenever they apply) for proper re-assembly:

CAUTION

In general, all O-RINGS AND SEALS must be replaced whenever hot-melt equipment is re-assembled. All new O-rings must be lubricated with O-ring lube (PN 001V078).

TAPERED PIPE THREADS are found on air pipe fittings used with the pump air supply and on the outlet filter manifold. Apply thread sealant (PN N02892) whenever tapered pipe threaded parts are re-assembled.

SOME FITTINGS used for adhesive on hot melt equipment have straight threads and O-ring seals. Use of thread sealant is not necessary with these parts, but the O-ring seals must be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated. Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

HOT-MELT RESIDUE must be cleaned from parts before they are re-assembled, particularly from threaded parts. As a precaution against adhesive residue preventing proper re-assembly, threaded parts must always be re-tightened at operating temperature.

5.1.2 Cleaning Recommendation

- Filters are disposable and need to be replaced regularly. DO NOT boil in mineral oil, solvents or water; the sealant used in filter assembly may become brittle and very likely disintegrate when boiled.
- When cleaning other components in mineral oil, remove all non-metallic items (O-rings, seals, filter cartridge, etc.) away from chemicals before components are subjected to hot mineral oil cleaning.
- If there is not a specific rebuild kit available or directions on how to clean a part, please treat it as a replacement item and do not attempt to clean/rebuild.

5.2 Maintenance plan

CAUTION

- Heed all security advices given in Chapter 5.1.
- Use only original parts from ITW Dynatec, otherwise ITW Dynatec's warranty is void!
- Heed the current safety data sheets when handling the hazardous substances (cleaner, etc.).
- Please use only the indicated lubricants and keep the prescribed maintenance intervals. Consider in addition the enclosed regulations of manufactures (if applicable).
- Punctual and conscientious maintenance of the unit secures not only a trouble free function, but prevents also for expensive repair costs.
- Before starting repair or maintenance work, switch the unit voltage-free and pressureless.
- After maintenance work, remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Place a heat-resistant catchment container/underlay under the components. Hot adhesive may come out.
- Use only lint-free cleaning cloth and suitable cleaner for cleaning! Do not damage surfaces! Do not scratch above them with sharp-edged tools, otherwise the components will get leaky and inoperable!

Maintenance plan:

Operating time/ frequency	Inspection point / maintenance notes
Continuous	• Remove dropped out adhesive and scrap adhesive and search for the cause of that, eliminate the cause.
Once a day	• Clean the Applicator and components from dirt. • Clean the nozzle from adhesive before each production start.
Once a week	• Check the nozzle for proper function and clogging, and replace if necessary the module (if the nozzle is integrated) or the nozzle (if replaceable). • Check the module on Applicator if leaky and replace if necessary. (Monitor for excess adhesive flow out of "weep hole" (the drain hole in the middle) – small amount is normal). • Check the adhesive filter in the Applicator for contamination and clogging, and replace if necessary. • Open the pressure relief screw, to purge and remove contaminants from the filter chamber. • Check the solenoid valves for proper function and replace it if necessary. • Check air supply connections for leaks and tighten if loose or replace if necessary. • Check all hose fittings for leaks and tighten if necessary.
Once a month	• Due to temperature differences a loosening of threads (threaded connections) is possible. Check all parts with threads, all screw fittings and fasteners for tightness and tighten them if necessary.
Once a year	• Clean the Applicator. • Complete check-up for wearing.
Every two years	• Complete maintenance.

5.3 Adhesive Pressure Relief

ADVICE

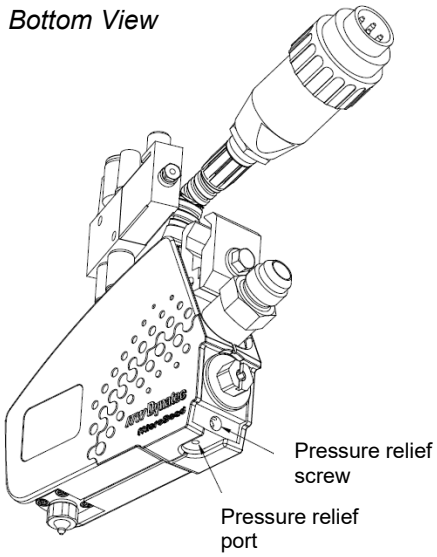
Heed all security advices given in chapter 5.1.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
   Switch the unit voltage-free and pressureless.
   Turn the air pressure regulator to zero bar.
   Guard the unit against unauthorized restarting.
3. Place a heat-resistant container/underlay under the applicator. Hot adhesive will come out.
4. With a 3mm hex key (Allen wrench), slowly loosen the pressure relief screw recessed under the service block (DO NOT try to remove the screw) and allow the adhesive to flow out of applicator.
   Stand clear since there may be residual adhesive pressure in the applicator.
5. When the adhesive pressure is relieved, re-tighten the screw with a torque of 2.21 ft/lbs (3 Nm).

Bottom View



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

Before each start of production, purge the Applicator, i.e. let the adhesive flow out until the adhesive is clean and bubble free.

Thereafter switch off the adhesive and clean the nozzle from adhesive.

Continue production.

5.4 Replacement of the Filter Element

ADVICE

Heed all security advices given in chapter 5.1.

Refer to the illustrations under “Ch.3.2 Description and Ch.5.3 Adhesive Pressure Relief”.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

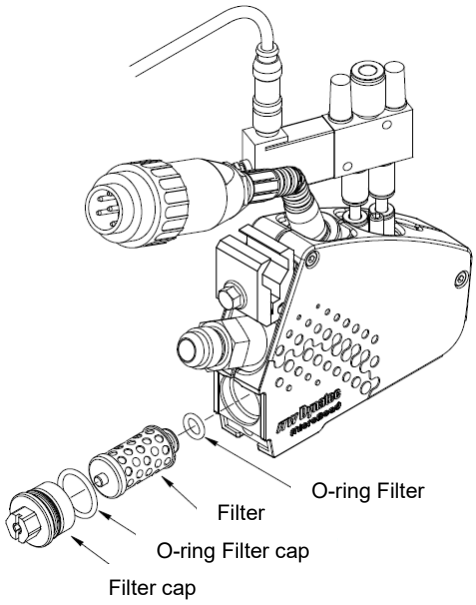
1. The applicator must be at operating temperature.

2. Turn the ASU’s pump/ motor OFF.
   Switch the unit voltage-free and pressureless.
   Turn the air pressure regulator to zero bar.
   Guard the unit against unauthorized restarting.

3. Place a heat-resistant catchment container/underlay under the applicator.
   Hot adhesive will come out.

4. Relieve the adhesive pressure as described under Ch.5.3 Adhesive Pressure Relief.

5. Remove the filter cap with a 10mm open wrench.
   Remove and discard the old filter element.
   Install new O-rings on the filter and filter cap.
   Assemble the new filter to the filter cap.



CAUTION

Apply a coat O-ring lube on the O-ring and a coat of anti-seize compound onto the threads of the filter cap before re-installing it.

6. Re-install the filter cap slowly, taking care to seat the cap O-ring without pinching it.
   Torque the filter cap to 5.9ft/lb (8Nm).

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

Before each start of production, purge the Applicator, i.e. let the adhesive flow out until the adhesive is clean and bubble free.

Thereafter switch off the adhesive and clean the nozzle from adhesive.

Continue production.

5.5 Cleaning the Applicator

ADVICE

Heed all security advices given in chapter 5.1.

MAINTENANCE

Check the Applicator regularly for dirt. Dirt can be caused e.g. by burned adhesive and pile up at the supply part, application module or nozzle.

When cleaning, adhere to the actual safety data sheet of the manufacturer of the cleaner!

CAUTION

PUR-adhesives react with air humidity. To avoid blocked nozzles or Applicators, these parts have to be protected airproof with PUR cleaner immediately after production stop or the whole unit must be purged with PUR cleaner.

Nozzles could be protected e.g. with protection caps filled with PUR-cleaner, mounted immediately after production stop.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

Cleaning the Applicator from the adhesive residues:

1. The applicator must be at operating temperature.

2. Turn the ASU's pump/ motor OFF.
   Switch the unit voltage-free and pressureless.
   Turn the air pressure regulator to zero bar.
   Guard the unit against unauthorized restarting.

3. Place a heat-resistant catchment container/underlay under the applicator.
   Hot adhesive may come out!

4. Clean the Applicator from adhesive residues by using a wooden scraper or lint-free cloth with cleaner.

   CAUTION: Do not damage the Applicator with sharp-edged or metallic objects or tools.

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

Before each start of production, purge the Applicator, i.e. let the adhesive flow out until the adhesive is clean and bubble free.

Thereafter switch off the adhesive and clean the nozzle from adhesive.

Continue production.

5.6 Replacement of the Application Module

ADVICE

Heed all security advices given in chapter 5.1.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

1. The applicator must be at operating temperature.

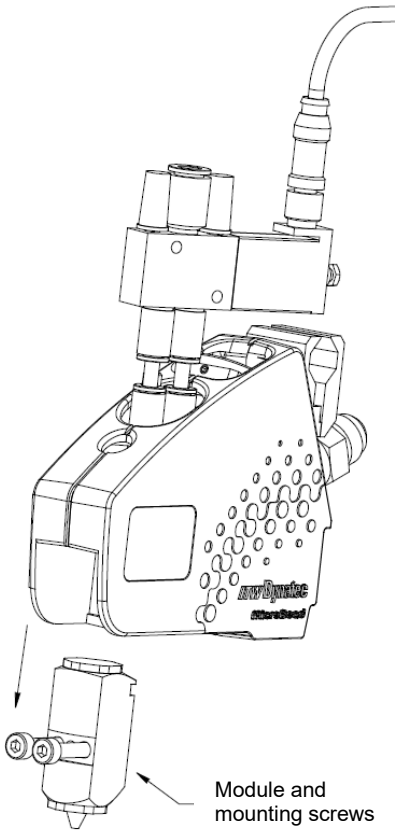
2. Turn the ASU's pump/ motor OFF.
   Switch the unit voltage-free and pressureless.
   Turn the air pressure regulator to zero bar.
   Guard the unit against unauthorized restarting.

3. Place a heat-resistant catchment container/underlay under the applicator.
   Hot adhesive will come out.

4. Relieve the adhesive pressure as described under Ch.5.3 Adhesive Pressure Relief.

5. Remove the module from the service block by removing the two 4mm socket head cap screws on the front of the module with a 3mm hex key screwdriver (Allen wrench).
   Remove the module in a vertical (downward) direction.
   Make sure that the three old O-rings located on the back of the module are also removed (the new module will include three new O-rings).

6. Clean the adhesive residuals from on the applicator.



CAUTION

Apply a coat of anti-seize compound onto the threads of the mounting screws before re-installing the new module.

7. Mount the new module using a 3mm hex key on the two screws with a torque of 2.21 ft/lbs (3 Nm) maximum.

After finishing the maintenance or repair works:

➢ Remove all materials and tools used during the repair or maintenance from the workspace of the unit.

➢ Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

Before each start of production, purge the Applicator, i.e. let the adhesive flow out until the adhesive is clean and bubble free.

Thereafter switch off the adhesive and clean the nozzle from adhesive.

Continue production.

5.7 Stroke Limit Adjustment of the Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100)

ADVICE

Heed all security advices given in chapter 5.1.

CAUTION! Risk of burns and injury!

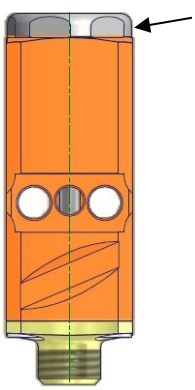
- The unit operates with very high temperatures and high adhesive pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

NOTE: This procedure can be performed only on the adjustable Micro Optima Module, which can be identified by its adjustment plate at the top of the module.

1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
   Switch the unit voltage-free and pressureless.
   Turn the air pressure regulator to zero bar.
   Guard the unit against unauthorized restarting.
3. Turn the adjustment plate clockwise until it bottoms lightly.

CAUTION:
Tightening the adjustment plate to completely shut OFF the nozzle will cause damage to the applicator

4. Back off the adjustment plate one and one-half (1.5) to two (2) turns.



5.8 Replacement of the Nozzle

NOTE: Only the nozzle on the Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) can be replaced.

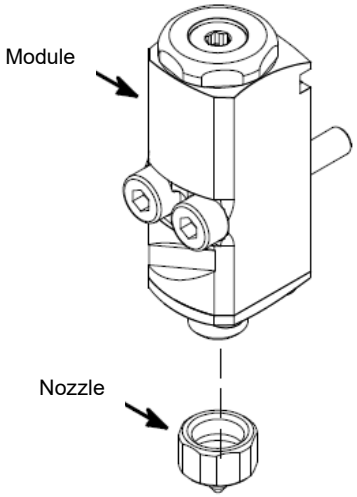
ADVICE

Heed all security advices given in chapter 5.1.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- During this procedure, hot adhesive can come out of the applicator under high pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

1. The applicator must be at operating temperature.
2. Turn the ASU's pump/ motor OFF.
   Switch the unit voltage-free and pressureless.
   Turn the air pressure regulator to zero bar.
   Guard the unit against unauthorized restarting.
3. Place a heat-resistant catchment container/underlay under the applicator.
   Hot adhesive will come out.
4. Relieve the adhesive pressure as described under Ch.5.3 Adhesive Pressure Relief.
5. Remove the nozzle from the module using a 10mm hex wrench.
6. Mount and tighten the new nozzle.
   DO NOT over tighten.



After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

Before each start of production, purge the Applicator, i.e. let the adhesive flow out until the adhesive is clean and bubble free.

Thereafter switch off the adhesive and clean the nozzle from adhesive.

Continue production.

5.9 Testing and Replacement of the Heater Cartridges and Temperature Sensor

5.9.1 Testing of the Heater Cartridges and Temperature Sensor

ADVICE

Heed all security advices given in chapter 5.1.

Only authorized skilled personnel may carry out the following work.

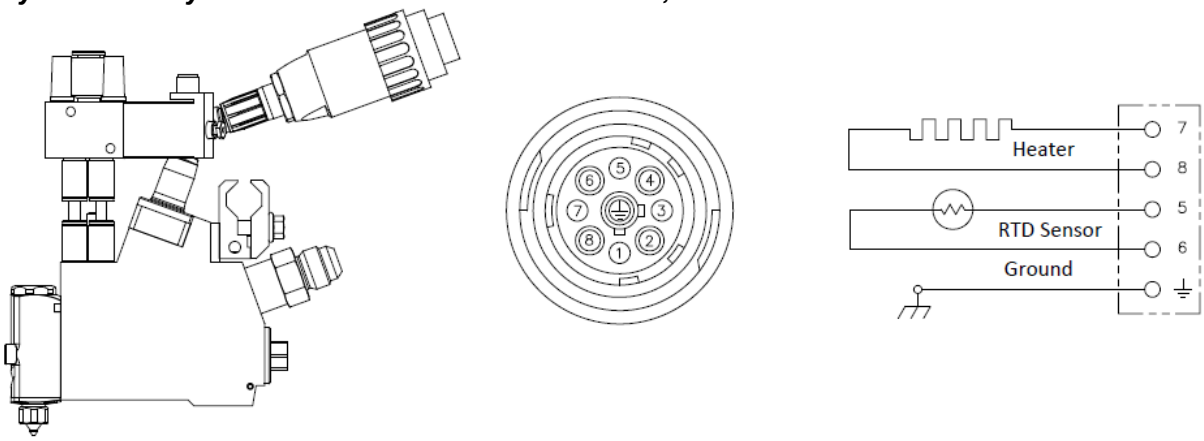
1. Turn the ASU's pump/ motor OFF.
   Turn the air pressure regulator to zero bar.
2. Unplug the electrical cable from the adhesive supply hose to expose the pins in the cable.

NOTE: Pin connectors and pinout numbers will vary depending on the control scheme of the applicator (Dynacontrol or Upgrade NOR).

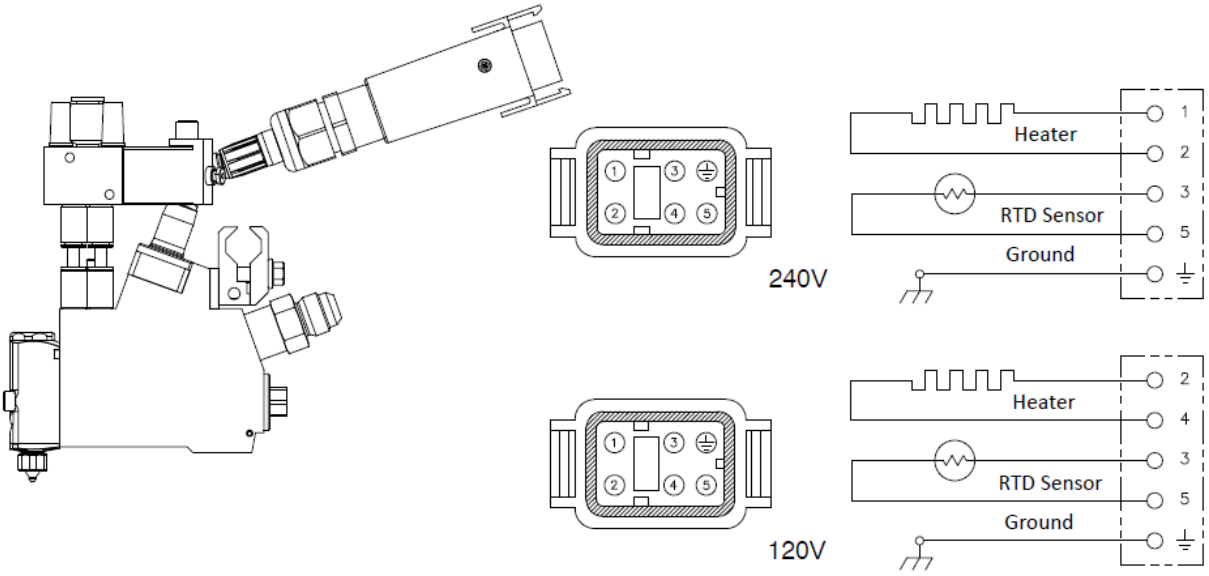
Pin Connectors & Electrical Schematics:

NOTE: Pin connectors are viewed from the exposed end. Pins not shown on schematics are not used.

DynaControl/Dynamini Uses PN N07958 RTD Sensor, Pt100:



Upgrade (NOR) Uses PN N07864 RTD Sensor, Ni120:



Testing Resistance of the Heater Cartridge

1. The heater resistance is measured at room temperature. The following values do not apply to new heater cartridges that have not been raised to operating temperature.

Heater Voltage	Heater Wattage	Resistance Range (in Ohm)
120VAC	125W	122.9 - 106.2
120VAC	200W	83.6 - 61.9
240VAC	155W	431.5 - 319.4
240VAC	200W	334.4 - 247.6

The resistance value (Ohm) may be calculated using the formula:

Operation voltage ² of the Applicator (Volt²)	= Resistance (Ohm)
Power consumption of the Applicator (Watt)	

2. **For DynaControl or Dynamini:**
With an Ohmmeter, contact pins 7 and 8 and measure resistance.

For Upgrade (NOR):
With an Ohmmeter, contact pins 1 and 2 (if 240V) or 2 and 4 (if 120V) and measure resistance.

NOTE: A tolerance range of ± 5% is allowed. A heater cartridge that tests outside of this range must be replaced.
Replacement instructions follow in this chapter.

Testing Resistance of the RTD Temperature Sensor

1. The resistance value (Ohm) of your temperature sensor depends on the temperature of the sensor at the time it is being tested.
At 25°C (77°F), the resistance of a PT 100 (Platinum) sensor should be 110 Ohm.
At 25°C (77°F), the resistance of a N120 (Nickel) sensor should be 138 Ohm.

2. **For DynaControl/Dynamini:**
With an ohmmeter, contact pins 5 and 6 and measure resistance.

For Upgrade (NOR):
With an ohmmeter, contact pins 3 and 5 and measure resistance.

NOTE: A tolerance range of ± 10% is allowed. A sensor that tests outside of this range must be replaced.
Replacement instructions follow in this chapter.
See Resistance Tables of Temperature Sensors on next page.

5.9.2 Resistance Tables, Temperature sensors

Temperature sensor PT100 Ohm
Control option: DCL

Temperature °F	Temperature °C	Resistance in Ohm
32	0	100
50	10	104
68	20	108
86	30	112
104	40	116
122	50	119
140	60	123
158	70	127
176	80	131
194	90	135
212	100	139
230	110	142
248	120	146
268	130	150
284	140	154
302	150	157
320	160	161
338	170	164
356	180	168
374	190	172
392	200	176
410	210	180
428	220	183

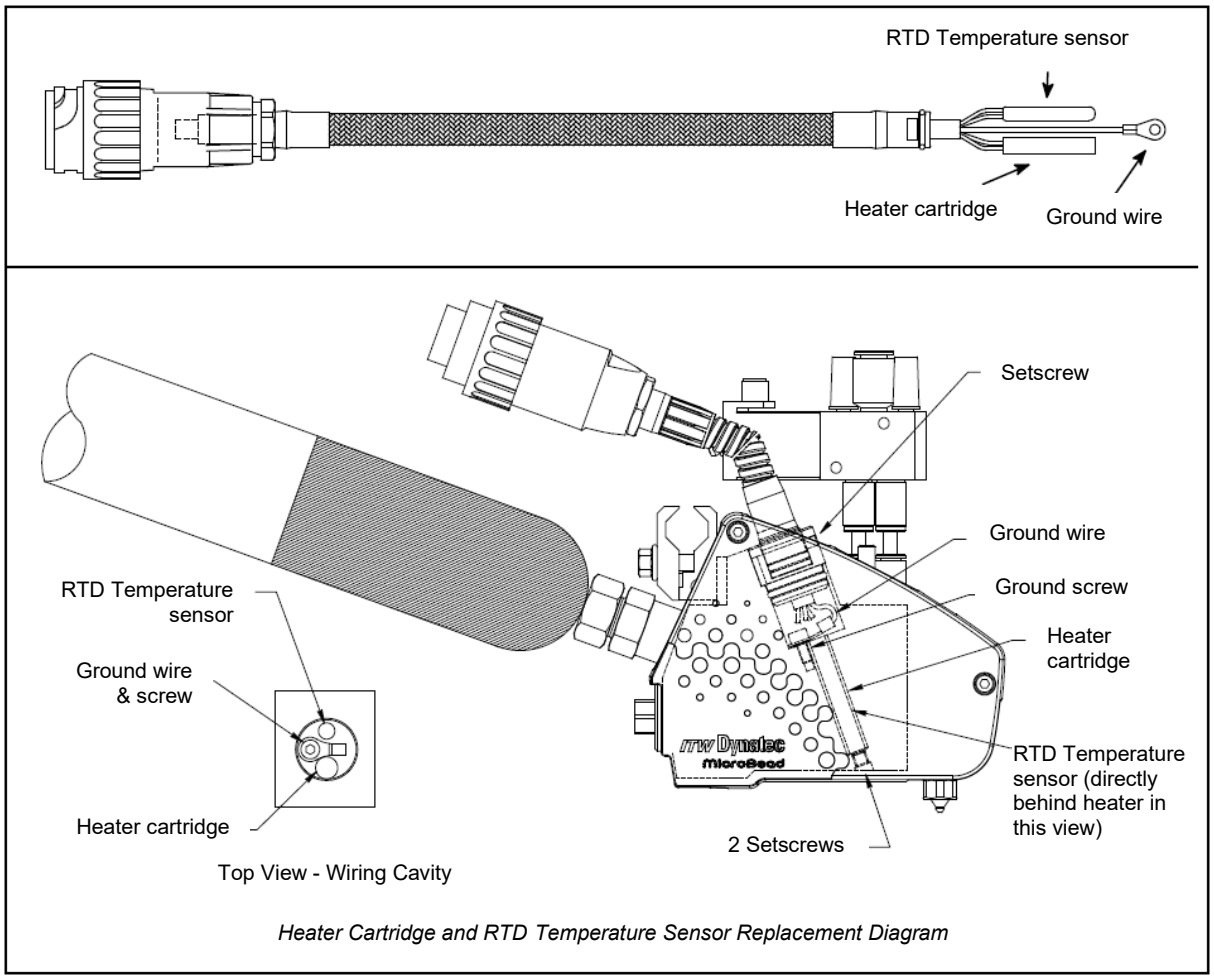
Temperature sensor Ni120 Ohm
Control option: NOR

Temperature °F	Temperature °C	Resistance in Ohm
32	0	120
50	10	127
68	20	135
86	30	142
104	40	150
122	50	158
140	60	166
158	70	174
176	80	183
194	90	192
212	100	201
230	110	210
248	120	219
268	130	229
284	140	239
302	150	249
320	160	259
338	170	270
356	180	284
374	190	292
392	200	303
410	210	315
428	220	328

5.9.3 Replacement of the Heater Cartridge or Temperature Sensor

ADVICE

Heed all security advices given in chapter 5.1.



Heater Cartridge and RTD Temperature Sensor Replacement Diagram

1. Turn all pumps/motors off. Turn all pressure air supply off and disconnect the power supply to the ASU. Guard the unit against unauthorized restarting.
2. Loosen the two retaining screws in the cable anchor and withdraw anchor from the service block body.
3. Disconnect the ground wire screw.
4. Remove the two set screws in the bottom of the back of the service body. Note: It may be necessary to apply heat in order to break the thread sealant.
5. Pull the cable assembly (with the heating cartridge and temperature sensor) out of the service block.
6. Loosen the set screw in the cable anchor and remove the cable assembly from the anchor.

Re-assembly

1. Re-assemble the cable assembly to the cable anchor. Re-attach the ground wire to the service block body. Insert the heater cartridge and temperature sensor into their respective holes in the service block body and carefully insert the anchor and cable assembly into the body.
2. Tighten the two cable anchor retaining screws.
3. Re-assemble and tighten the two set screws in the bottom of the service body. If a water-tight seal is desired, re-apply thread sealant (Loctite 242 or equal) to the set screws.

After finishing the maintenance or repair works:

- Remove all materials and tools used during the repair or maintenance from the workspace of the unit.
- Connect the voltage supply and the compressed air supply. Heat the unit up. Wait until all temperatures are within the tolerances and the adhesive in the tank is molten completely.

CAUTION

Before each start of production, purge the Applicator, i.e. let the adhesive flow out until the adhesive is clean and bubble free.

Thereafter switch off the adhesive and clean the nozzle from adhesive.

Continue production.

Chapter 6
Troubleshooting

ADVICES:
Please re-read all security advices given in Chapter 2 before troubleshooting.
All troubleshooting or repair procedures must be performed by qualified, trained technicians.

The temperatures measured on the outer surface may deviate significantly from the temperatures set and displayed. This can lead to a false conclusion (e.g. defective heating). Such a difference is normal and depends also largely on the materials used.

In general: If failure occurs, check first:

- Check all the electrical and pneumatic connections.
- Verify that the Applicator has sufficient compressed air and it is heating properly.
- Verify that the main power switch at the Adhesive Supply Unit is ON.
- Verify that the pump is functioning and the required adhesive pressure is present.
- Verify that the temperature controller is in operation and that the setpoints are correct for the Melter, Heated Hoses, Applicator and all other components connected to the unit. Check to see if all components are heating properly.

CAUTION! Risk of burns and injury!

- The unit operates with very high temperatures and high adhesive pressure.
- Always wear heat-resistant protective gloves, safety goggles and protective clothing! Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!

Problem	Possible Cause	Solution
1. Module does not open.	1. Temperature adjustment of hopper (tank), hose or applicator is too low. 2. Solenoid valve defective. 3. Compressed air for Applicator is too low. 4. Standby activated.	1. Check temperature adjustment. 2. Check solenoid valve. Push the solenoid's manual button. If it opens, the problem is electrical. 3. Check compressed air; this should be 6 bar. 4. Deactivate standby.
2. No adhesive flowing out of module.	1. Nozzle is clogged. 2. Filter element is dirty. 3. Module (or its seals) defective. 4. ASU's hopper (tank) is empty. 5. Adhesive is too cold. 6. Solenoid valve is not opening.	1. Clean or replace nozzle. 2. Clean or replace filter. 3. Replace module. 4. Re-fill hopper (tank). 5. Check temperature settings. 6. Check solenoid valve. Push the solenoid's manual button. If it opens, the problem is electrical.

3. Adhesive is coming out of the module's "weep" holes.	1. Module seals are damaged.	1. Replace module.
4. Applicator does not reach operating temperature.	1. Temperature settings wrong. 2. Heater cartridge defective. 3. Temperature sensor defective.	1. Reset temperature settings. 2. Check heater cartridge and replace if necessary. 3. Check temperature sensor and replace if necessary.
5. Applicator is too hot	1. Temperature setpoint is too high. 2. Temperature sensor defective. 3. Controller defective.	1. Check temperature settings and reset if necessary. 2. Check temperature sensor and replace if necessary. 3. Replace controller.
6. Air escapes from module	1. Inoperative piston seal. 2. O-rings located at the rear side of module (between module and service block) are defective.	1. Replace module. 2. Remove module and replace O-rings.
7. Application pattern is erratic	1. Adhesive pressure too low. 2. Pattern controller settings are wrong. 3. Air is in system.	1. *For units without speed control:* increase adhesive pressure at ASU. *For units with speed control (tach follower):* adjust pump speed control. 2. Adjust Pattern controller settings. See Pattern controller manual for proper adjustment. 3. Purge air from system.
8. Adhesive flow is tearing off.	1. Temperature too low.	1. Increase temperature.
9. Adhesive amount too high.	1. Nozzle orifice too large. 2. Temperature too high. 3. Adhesive pressure too high.	1. Change nozzle (module). 2. Reset temperature. 3. Decrease adhesive pressure at the Adhesive Supply Unit.

Chapter 7
Drawings & Bills of Materials

WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

This chapter contains the component illustrations (exploded-view drawings) for each assembly. These drawings are useful for finding part numbers as well as for use when maintaining or repairing the equipment.

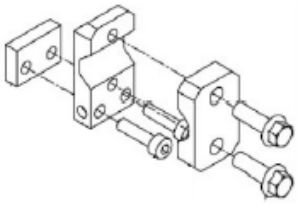
Note: Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

7.1 BF MicroBead Applicator with 1 Module

Item	PN	Description	Qty
1	117015 *	Insulating plate	1
2	118571 *	Bar clamp base plate	1
3	118572 *	Bar clamp pressure plate	1
4	117014 *	Screw M4x18mm	2
5	117012	Filter cap	1
6	N00183	O-ring 016	1
7	-	**Micro Optima Module** (see sales order and Ch.8 Ordering Guide)	1
8	117009	Service block, 1-port	1
9	117068	Spring pin 2x20mm	1
10	109882	Pressure relief screw	1
11	117076	Fitting, connection, M5x4mm tube	2
12	117061	Air tube	2
13	117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB	1
14	-	**Nozzle** (used only with Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) (see sales order and Ch.8 Ordering Guide)	1
16	117060 *	Screw M5x16mm with flange	2
17	-	**Filter cartridge** (see sales order and Ch.8 Ordering Guide)	1
18	117011	Cable anchor	1
19	117033	Date plate	1
20	117636	Cover kit, 1 Module, (includes screws item 30)	1
21	103405	Screw M3x6mm	3
22	108362	Lock washer, external tooth, M3	1
23	-	**Cable assembly** (see sales order and Ch.8 Ordering Guide) (RTD temp. sensor and heater cartridge are part of the Cable assembly)	1
24	109746	Setscrew M4x4mm	2
25	106857	Setscrew M4x5mm	1
26	101624	Hose connection fitting, G1/4x06	1
27	N00179	O-ring 012	1
28	N00182	O-ring 015	1
30	103537	Screw M3x16mm	2
31	117326	Setscrew M5x25mm	1
32	N00177	O-ring 010	1
33	001U002	Silicone lube, 5.3 ounce (157 ml) resealable tube	A/R*
34	107324	Antiseize Compound, 0.5kg container	A/R*
35	117819	Thread locker, adhesive/sealant, green	A/R*
36	100978	Tag, QAP (not shown)	1
37	103053	Tag, oil free (not shown)	1

* Items 1 - 4 and 16 = PN 118573 Bar clamp assembly.
A/R* = As required.

Items 1 - 4 and 16
= PN 118573 Bar clamp assembly:



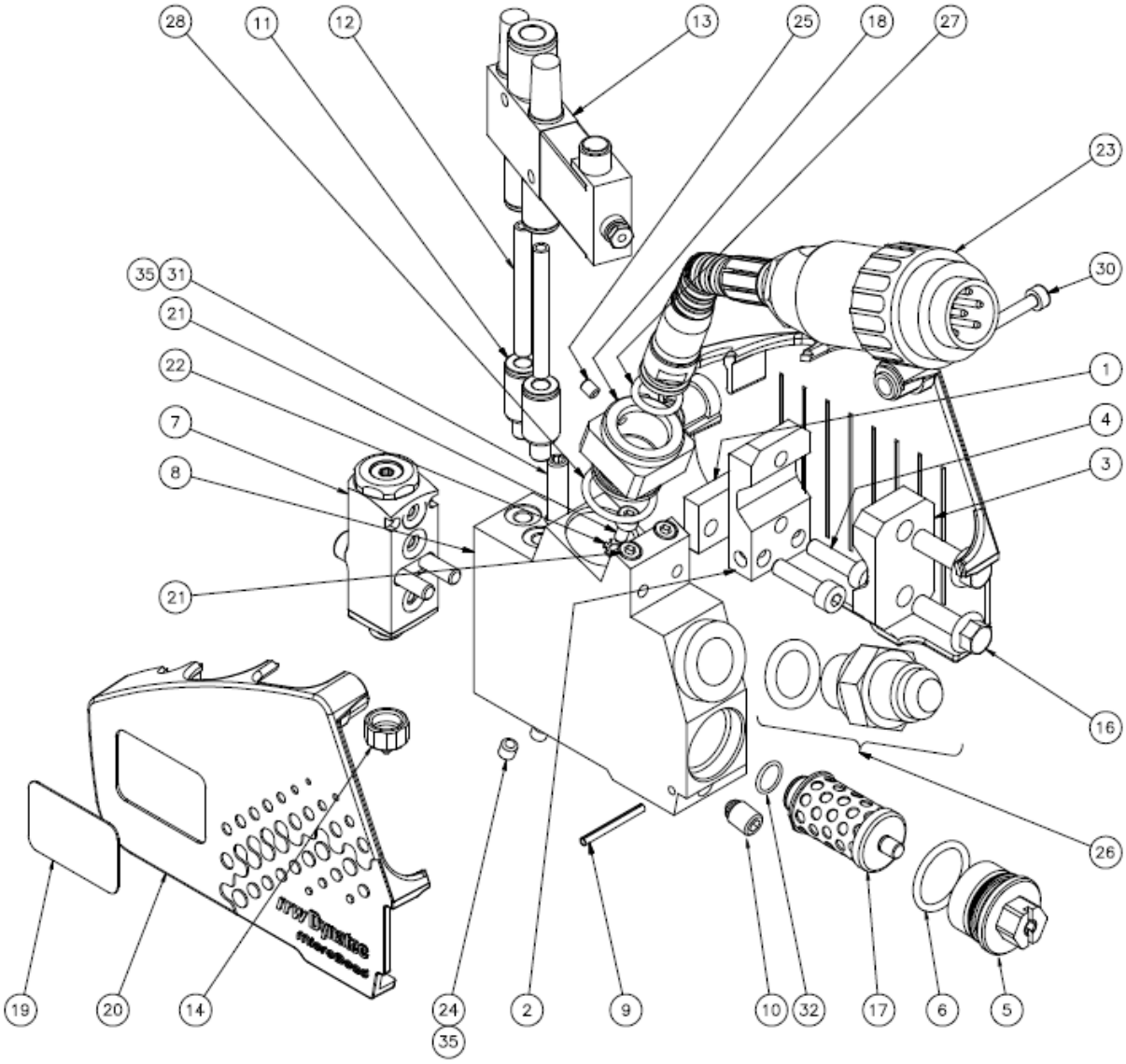


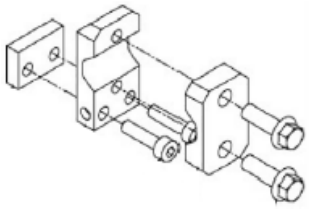
Illustration: BF MicroBead Applicator with 1 Module

7.2 BF MicroBead Applicator with 2 Modules, Single & Separate Control, Standard Mount

Item	PN	Description	Qty for Single Control	Qty for Separate Control
1	117015 *	Insulating plate	1	1
2	118571 *	Bar clamp base plate	1	1
3	118572 *	Bar clamp pressure plate	1	1
4	117014 *	Screw M4x18mm	2	2
5	117012	Filter cap	1	1
6	N00183	O-ring 016	1	1
7	-	**Micro Optima Module** (see sales order and Ch.8 Ordering Guide)	2	2
8	117068	Spring pin 2x20mm	1	1
9	109882	Pressure relief screw	1	1
10	117076	Fitting, connection, M5x4mm tube	2	4
11	117061	Air tube	2	4
12	117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB	1	2
13	-	**Nozzle** (used only with Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) (see sales order and Ch.8 Ordering Guide)	2	2
14	117637	Cover Kit (includes item 16 spacers & item 32 screws)	1	1
15	117060 *	Screw M5x16mm with flange	2	2
16	117034	Cover spacer	2	2
17	117033	Label	1	1
18	112716	Setscrew M5x6mm	3	1
19	N00177	O-ring 010	1	1
20	103405	Screw M3x6mm	3	3
21	117326	Setscrew M5x25mm	1	6
22	106857	Setscrew M4x5mm	1	1
23	117011	Cable anchor	1	1
24	117010	Service block, 2-modules, common program	1	-
	117560	Service block, 2-modules, individual program	-	1
25	-	**Filter cartridge** (see sales order and Ch.8 Ordering Guide)	1	1
26	109746	Setscrew M4x4mm	2	2
27	-	**Cable assembly** (see sales order and Ch.8 Ordering Guide) (RTD temp. sensor and heater cartridge are part of the Cable assembly)	1	1
28	108362	Lock washer, external tooth, M3	1	1
29	117059	Hose connection fitting, straight, 6JIC X G1/4	1	1
30	N00181	O-ring 014	1	1
31	N00182	O-ring 015	1	1
32	117063	Screw M3x40mm	2	2
33	N00179	O-ring 012	1	1
34	117532	Solenoid cable, flying leads	1	2
	117549	Solenoid cable for DPC/TPC	1	2
	117550	Solenoid cable for DY2008	1	2

* Items 1 - 4 and 15 = PN 118573 Bar clamp assembly.

Items 1 - 4 and 15
= PN 118573 Bar clamp assembly:



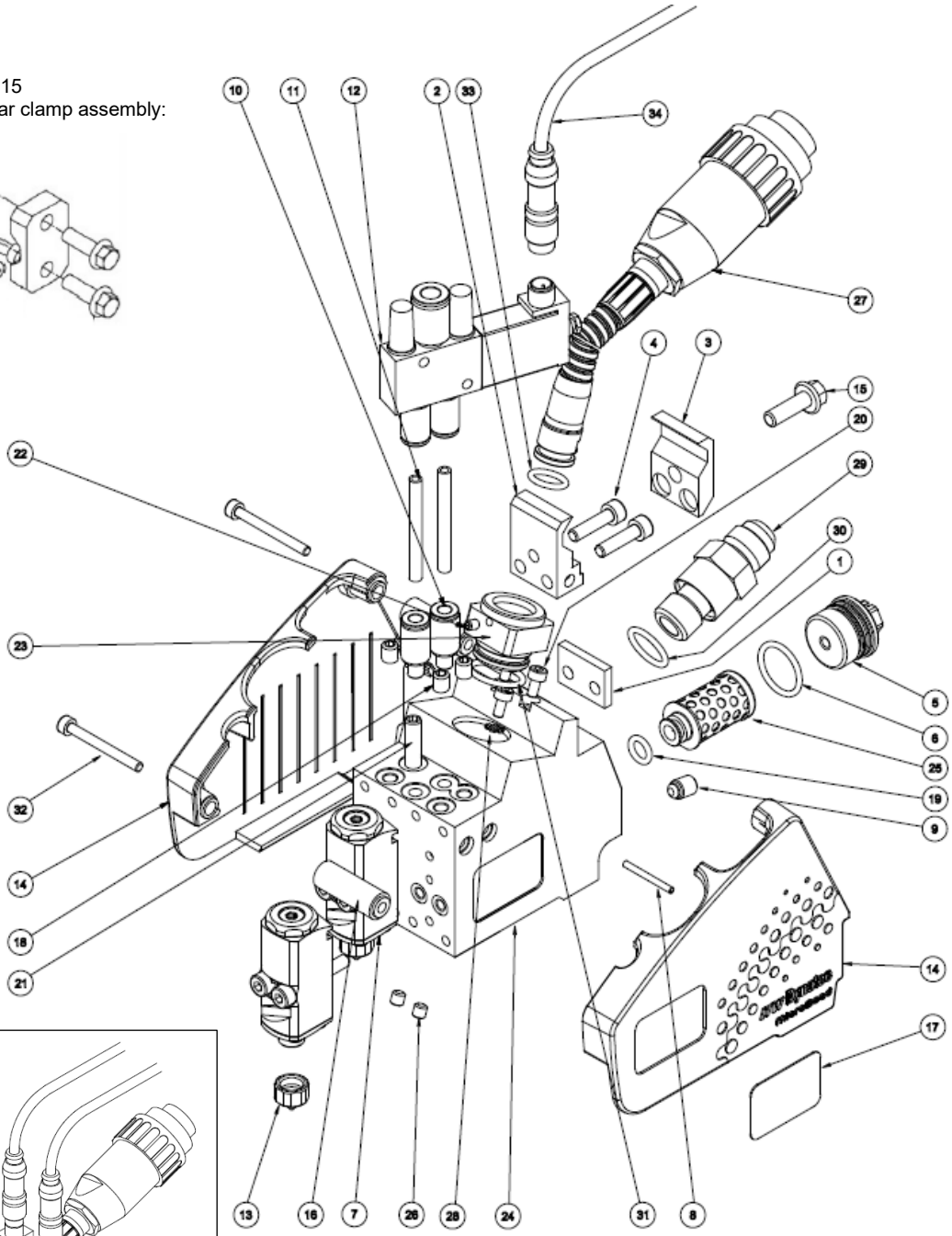


Illustration: BF MicroBead Applicator with 2 Modules, Single Control, Standard Mount

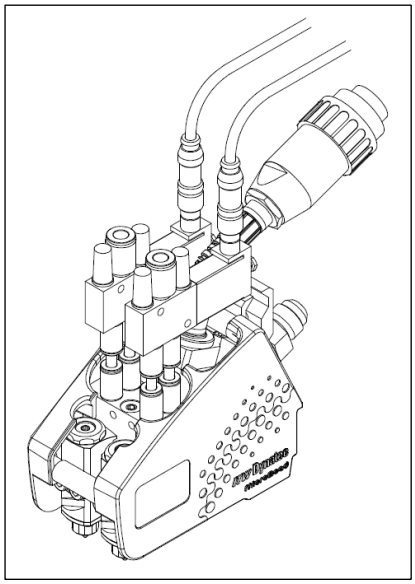


Illustration: BF MicroBead Applicator with 2 Modules, Separate Control, Standard Mount

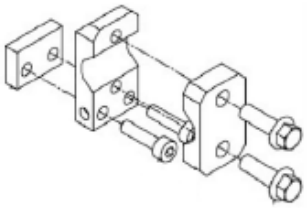
7.3 BF MicroBead Applicator with 2 Modules, Single & Separate Control, Pivot Mount

Item	PN	Description	Qty for Single Control	Qty for Separate Control
1	117015 *	Insulating plate	1	1
2	118571 *	Bar clamp base plate	1	1
3	118572 *	Bar clamp pressure plate	1	1
4	117014 *	Screw M4x18mm	2	2
5	117012	Filter cap	1	1
6	N00183	O-ring 016	1	1
7	-	**Micro Optima Module** (see sales order and Ch.8 Ordering Guide)	2	2
8	117068	Spring pin 2x20mm	1	1
9	109882	Pressure relief screw	1	1
10	117076	Fitting, connection, M5x4mm tube	2	4
11	117061	Air tube	2	4
12	117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB	1	2
13	-	**Nozzle** (used only with Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) (see sales order and Ch.8 Ordering Guide)	2	2
14	117060 *	Screw M5x16mm with flange	2	2
15	117033	Label	1	1
16	112716	Setscrew M5x6mm	3	1
17	103405	Screw M3x6mm	3	3
18	N00177	O-ring 010	1	1
19	106857	Setscrew M4x5mm	1	1
20	117011	Cable anchor	1	1
21	117010	Service block, 2-modules, common program	1	-
	117560	Service block, 2-modules, individual program	-	1
22	-	**Filter cartridge** (see sales order and Ch.8 Ordering Guide)	1	1
23	109746	Setscrew M4x4mm	2	2
24	-	**Cable assembly** (see sales order and Ch.8 Ordering Guide) (RTD temp. sensor and heater cartridge are part of the Cable assembly)	1	1
25	108362	Lock washer, external tooth, M3	1	1
26	117059	Hose connection fitting, straight, 6JIC X G1/4	1	1
27	N00181	O-ring 014	1	1
28	N00182	O-ring 015	1	1
29	N00179	O-ring 012	1	1
30	117065 *	Pivot Kit	2	2
31	117326	Setscrew M5x25mm	1	1
32	117532	Solenoid cable, flying leads	1	2
	117549	Solenoid cable for DPC/TPC	1	2
	117550	Solenoid cable for DY2008	1	2

* Items 1 - 4 and 14 = PN 118573 Bar clamp assembly.
* 117065 see separate drawing and BOM.

Note:
The cover kit for the 2 module applicator is not able to be installed if the applicator is equipped with Pivot option.

Items 1 - 4 and 14
= PN 118573 Bar clamp assembly:



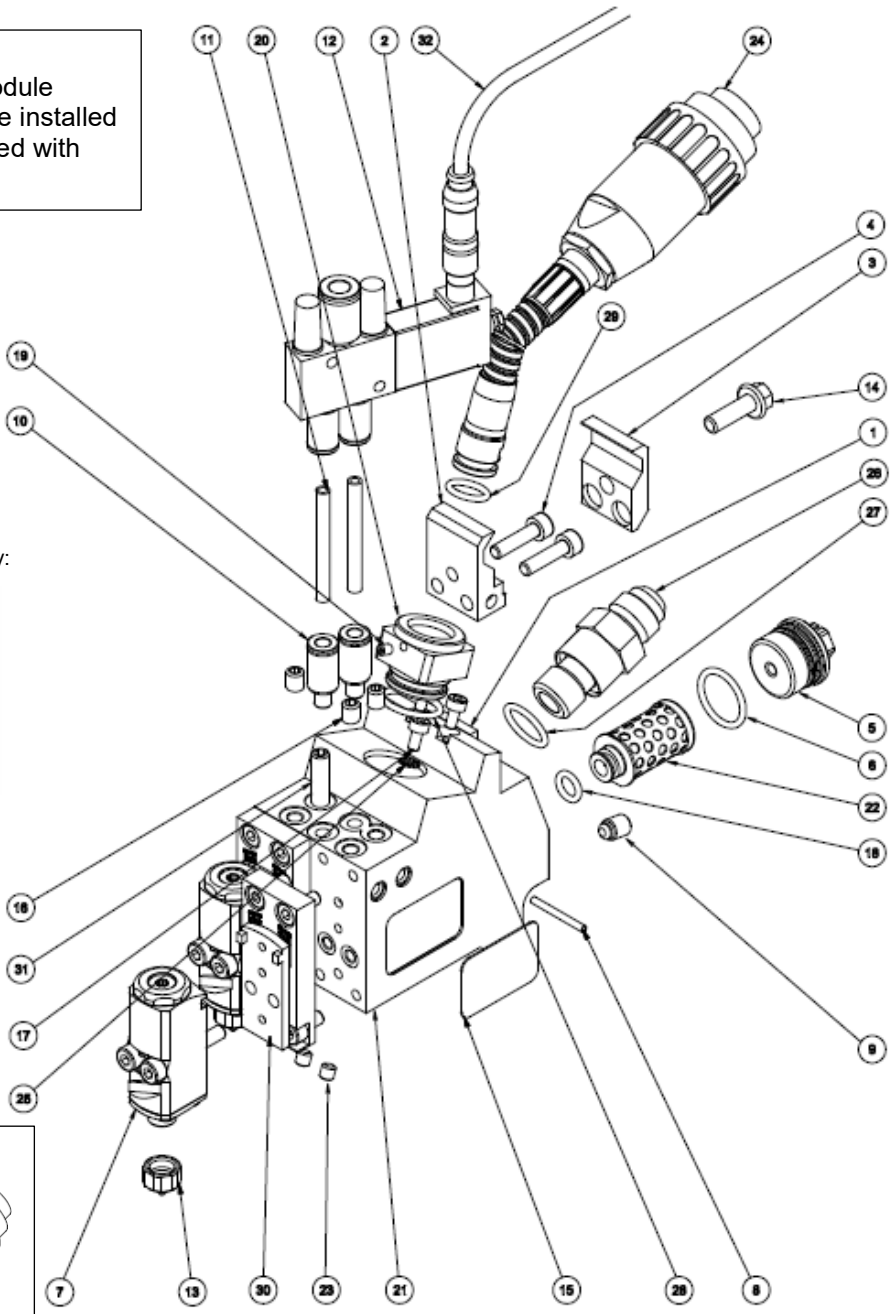


Illustration: BF MicroBead Applicator with 2 Modules, Single Control, Pivot Mount

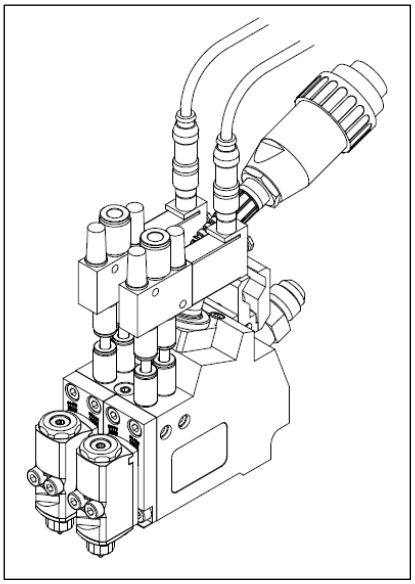
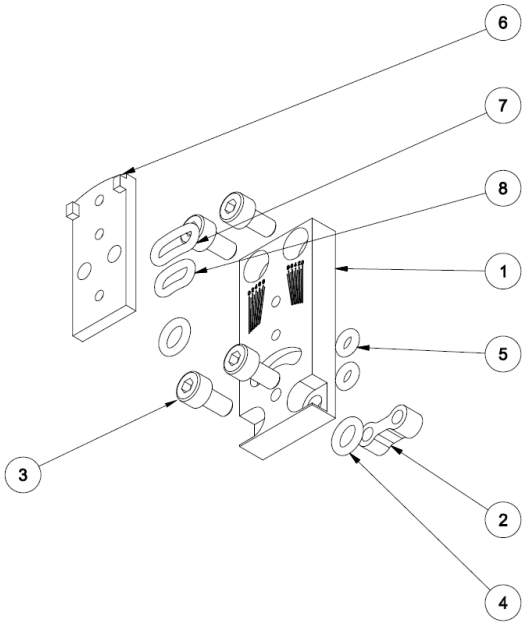


Illustration: BF MicroBead Applicator with 2 Modules, Separate Control, Pivot Mount

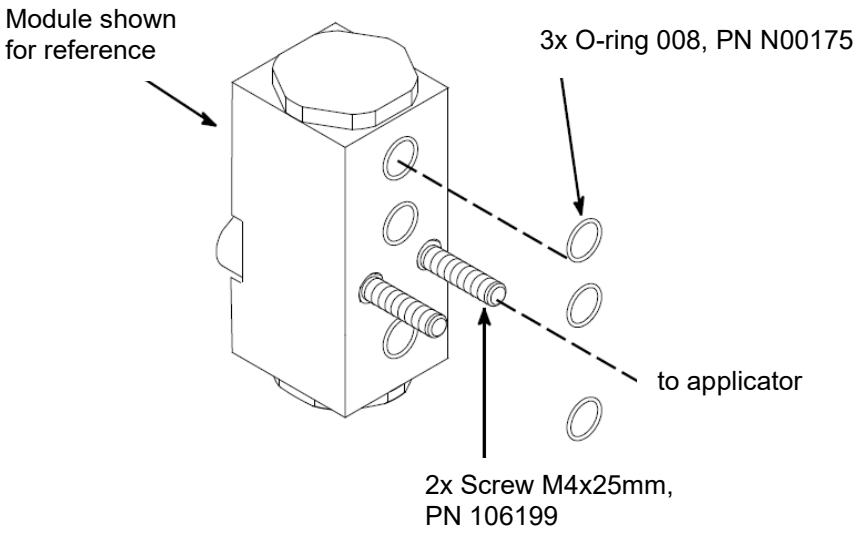
7.4 Pivot Mount Kit, PN 117065

Item	PN	Description	Qty
1	117018	Pivot adapter plate	1
2	117019	Slot nut	1
3	106338	Screw M4x8mm	4
4	N00175	O-ring 008	2
5	N00173	O-ring 007	2
6	117071	Adapter plate	1
7	N00178	O-ring 011	1
8	N00177	O-ring 010	1



7.5 Module Mounting Parts

Note: O-rings and screws are included with the purchase of module(s).

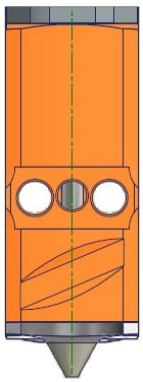


Chapter 8
Ordering Guide, Options & Recommended Spare Parts

8.1 Micro Optima Modules

Micro Optima Module US PN	Micro Optima Module EMEA PN	Ref. no.	Nozzle-orifice-Ø
7020	-	1	0.008“ (0.20mm)
7021	50.07021.100	2	0.0085“ (0.21mm)
7022	50.07022.100	3	0.009“ (0.24mm)
7023	50.07023.100	4	0.011“ (0.29mm)
7024	50.07024.100	5	0.013“ (0.33mm)
7025	50.07025.100	6	0.015“ (0.38mm)
7026	50.07026.100	7	0.018“ (0.46mm)
7027	50.07027.100	8	0.020“ (0.52mm)
7028	50.07028.100	9	0.024“ (0.62mm)

Typical Micro Optima Module (optimized with integrated nozzle):

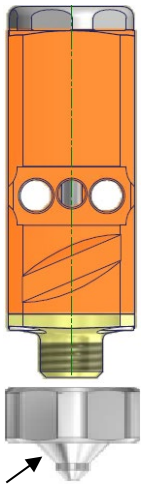


(example picture)

8.2 Adjustable Micro Optima Module, PN 7050 (EMEA PN 50.M7050.100)

Adjustable Micro Optima Module for interchangeable nozzle (see next pages for nozzle options).

Typical Adjustable Micro Optima Module for interchangeable nozzle:



Interchangeable nozzle (example picture)

8.3 Nozzles

NOTE: All of the following nozzles are for the module PN 7050 (EMEA PN 50.M7050.100) only.

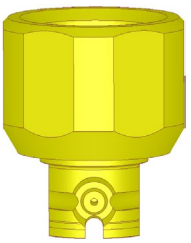
1-Orifice Nozzles, straight-thru:

US PN	EMEA PN	Description
MM2501	50.M2501.100	Nozzle, Ø 0.008” (0.21mm), 1-orifice, .050BRL,SS
MM2503	50.M2503.100	Nozzle, Ø 0.010” (0.26mm), 1-orifice, .050BRL,SS
MM2504	50.M2504.100	Nozzle, Ø 0.012” (0.31mm), 1-orifice, .050BRL,SS
MM2505	50.M2505.100	Nozzle, Ø 0.014” (0.36mm), 1-orifice, .050BRL,SS
MM2507	50.M2507.100	Nozzle, Ø 0.016” (0.41mm), 1-orifice, .050BRL,SS
MM2508	50.M2508.100	Nozzle, Ø 0.018” (0.46mm), 1-orifice, .050BRL,SS
MM2509	50.M2509.100	Nozzle, Ø 0.020” (0.51mm), 1-orifice, .050BRL,SS
MM2510	50.M2510.100	Nozzle, Ø 0.022” (0.56mm), 1-orifice, .050BRL,SS
MM2511	50.M2511.100	Nozzle, Ø 0.024” (0.61mm), 1-orifice, .050BRL,SS
MM2513	50.M2513.100	Nozzle, Ø 0.028” (0.71mm), 1-orifice, .050BRL,SS
MM2514	50.M2514.100	Nozzle, Ø 0.030” (0.76mm), 1-orifice, .050BRL,SS
MM2515	50.M2515.100	Nozzle, Ø 0.032” (0.81mm), 1-orifice, .050BRL,SS
MM2517	50.M2517.100	Nozzle, Ø 0.047” (1.20mm), 1-orifice, .050BRL,SS

(example picture)

1-Orifice 90° Nozzles:

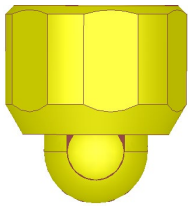
US PN	EMEA PN	Description
MM1510	-	Nozzle, Ø 0.008” (0.21mm), 1-orifice x 90°
MM3904	-	Nozzle, Ø 0.012” (0.31mm), 1-orifice x 90°
MM3906	50.M3906.100	Nozzle, Ø 0.016” (0.41mm), 1-orifice x 90°
MM1518	-	Nozzle, Ø 0.018” (0.46mm), 1-orifice x 90°
MM3907	-	Nozzle, Ø 0.020” (0.51mm), 1-orifice x 90°
MM3909	-	Nozzle, Ø 0.024” (0.61mm), 1-orifice x 90°
MM3908	-	Nozzle, Ø 0.028” (0.71mm), 1-orifice x 90°
MM3900	-	Nozzle, Ø 0.039” (0.99mm), 1-orifice x 90°



(example picture)

2-Orifice Nozzles, straight-thru:

US PN	EMEA PN	Description
MM1194	-	Nozzle, Ø 0.012” (0.31mm), 2-orifice X 17°
MM1195	50.M1195.100	Nozzle, Ø 0.014” (0.36mm), 2-orifice X 17°
MM1196	50.M1196.100	Nozzle, Ø 0.016” (0.41mm), 2-orifice X 17°
MM1198	-	Nozzle, Ø 0.020” (0.51mm), 2-orifice X 17°
MM1199	-	Nozzle, Ø 0.028” (0.71mm), 2-orifice X 17°
MM1152	50.M1152.100	Nozzle, Ø 0.008” (0.21mm), 2-orifice X 30°
MM1153	50.M1153.100	Nozzle, Ø 0.010” (0.26mm), 2-orifice X 30°
MM1154	50.M1154.100	Nozzle, Ø 0.012” (0.31mm), 2-orifice X 30°
MM1155	-	Nozzle, Ø 0.014” (0.36mm), 2-orifice X 30°
MM1156	50.M1156.100	Nozzle, Ø 0.016” (0.41mm), 2-orifice X 30°
MM1157	-	Nozzle, Ø 0.018” (0.46mm), 2-orifice X 30°
MM1158	50.M1158.100	Nozzle, Ø 0.020” (0.51mm), 2-orifice X 30°
MM1159	50.M1159.100	Nozzle, Ø 0.028” (0.71mm), 2-orifice X 30°

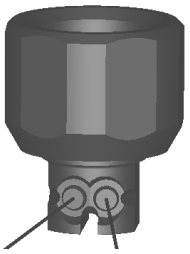


(example picture)

MM1122	-	Nozzle, Ø 0.008” (0.21mm), 2-orifice X 45°
MM1123	-	Nozzle, Ø 0.010” (0.26mm), 2-orifice X 45°
MM1124	-	Nozzle, Ø 0.012” (0.31mm), 2-orifice X 45°
MM1125	-	Nozzle, Ø 0.014” (0.36mm), 2-orifice X 45°
MM1126	-	Nozzle, Ø 0.016” (0.41mm), 2-orifice X 45°
MM1127	-	Nozzle, Ø 0.018” (0.46mm), 2-orifice X 45°
MM1128	-	Nozzle, Ø 0.020” (0.51mm), 2-orifice X 45°
MM1129	-	Nozzle, Ø 0.028” (0.71mm), 2-orifice X 45°

2-Orifice 90° Nozzles:

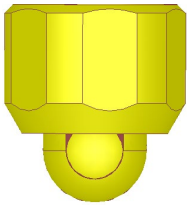
US PN	EMEA PN	Description
MM4914	-	Nozzle, Ø 0.012” (0.31mm), 2-orifice X 15°
MM4916	-	Nozzle, Ø 0.016” (0.41mm), 2-orifice X 15°
MM1618	-	Nozzle, Ø 0.018” (0.46mm), 2-orifice X 15°
MM4917	-	Nozzle, Ø 0.020” (0.51mm), 2-orifice X 15°
MM1624	-	Nozzle, Ø 0.024” (0.61mm), 2-orifice X 15°
MM4926	-	Nozzle, Ø 0.016” (0.41mm), 2-orifice X 30°
MM1724	-	Nozzle, Ø 0.018” (0.46mm), 2-orifice X 30°
MM4927	-	Nozzle, Ø 0.020” (0.51mm), 2-orifice X 30°
MM1728	-	Nozzle, Ø 0.024” (0.61mm), 2-orifice X 30°



(example picture)

3-Orifice Nozzles, straight-thru:

US PN	EMEA PN	Description
MM1132	-	Nozzle, Ø 0.008” (0.21mm), 3-orifice X 45°
MM1133	-	Nozzle, Ø 0.010” (0.26mm), 3-orifice X 45°
MM1134	-	Nozzle, Ø 0.012” (0.31mm), 3-orifice X 45°
MM1135	-	Nozzle, Ø 0.014” (0.36mm), 3-orifice X 45°
MM1136	-	Nozzle, Ø 0.016” (0.41mm), 3-orifice X 45°
MM1137	-	Nozzle, Ø 0.018” (0.46mm), 3-orifice X 45°
MM1138	-	Nozzle, Ø 0.020” (0.51mm), 3-orifice X 45°
MM1139	-	Nozzle, Ø 0.031” (0.79mm), 3-orifice X 30°



(example picture)

8.4 Filter Kits

To simplify ordering, Filter Kits are available for the 100-mesh, 150-mesh and 200-mesh filters.

Filter Kit PN	Filter asy PN	O-ring PN	O-ring PN	Filter cap PN
117021	100-mesh 117020	O-ring 010, N00177	O-ring 016, N00183	-
117023	150-mesh 117022	O-ring 010, N00177	O-ring 016, N00183	-
117025	200-mesh 117024	O-ring 010, N00177	O-ring 016, N00183	-
117078	100-mesh 117020	O-ring 010, N00177	O-ring 016, N00183	Filter cap 117012
117079	150-mesh 117022	O-ring 010, N00177	O-ring 016, N00183	Filter cap 117012
117080	200-mesh 117024	O-ring 010, N00177	O-ring 016, N00183	Filter cap 117012

8.5 Cable assemblies for DynaControl with PT100 RTD sensors

NOTE: Heaters and RTD temperature sensors are located in the Cable Assemblies. Choose one of the cable assemblies according to your applicator:

PN	Description	Incl. RTD sensor and Heater	Qty
150031	**Cable asy 120VAC DCL,** Standard, for 1-module applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110181 Heater cartridge Ø6.5x32mm, 125W, 120V	1
109742	**Cable asy 120VAC DCL,** Water-resistant, for 1-module applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110181 Heater cartridge Ø6.5x32mm, 125W, 120V	1
150032	**Cable asy 120VAC DCL,** Standard, for 2-modules applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 117026 Heater cartridge Ø8x40mm, 200W, 120V	1
117032	**Cable asy 120VAC DCL,** Water-resistant, for 2-modules applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 117026 Heater cartridge Ø8x40mm, 200W, 120V	1
150029	**Cable asy 240VAC DCL,** Standard, for 1-module applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110180 Heater cartridge Ø6.5x40mm, 155W, 240V	1
109708	**Cable asy 240VAC DCL,** Water-resistant, for 1-module applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110180 Heater cartridge Ø6.5x40mm, 155W, 240V	1
150030	**Cable asy 240VAC DCL,** Standard, for 2-modules applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 106448 Heater cartridge Ø8x40mm, 200W, 240V	1
117035	**Cable asy 240VAC DCL,** Water-resistant, for 2-modules applicator	PN N07958 RTD temp. sensor PT100, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 106448 Heater cartridge Ø8x40mm, 200W, 240V	1

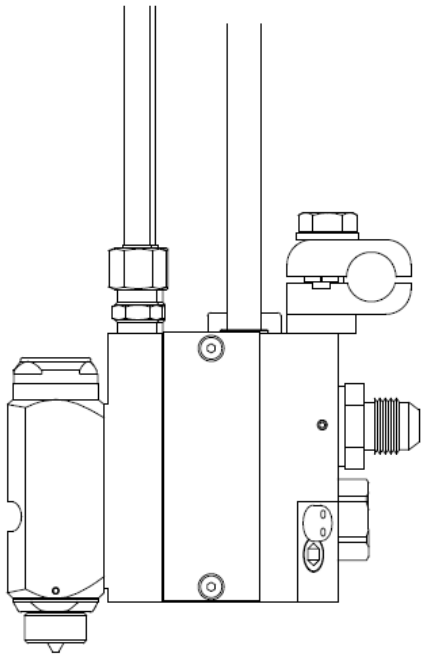
8.6 Cable assemblies for Upgrade NOR with Ni120 RTD sensors

NOTE: Heaters and RTD temperature sensors are located in the Cable Assemblies. Choose one of the cable assemblies according to your applicator:

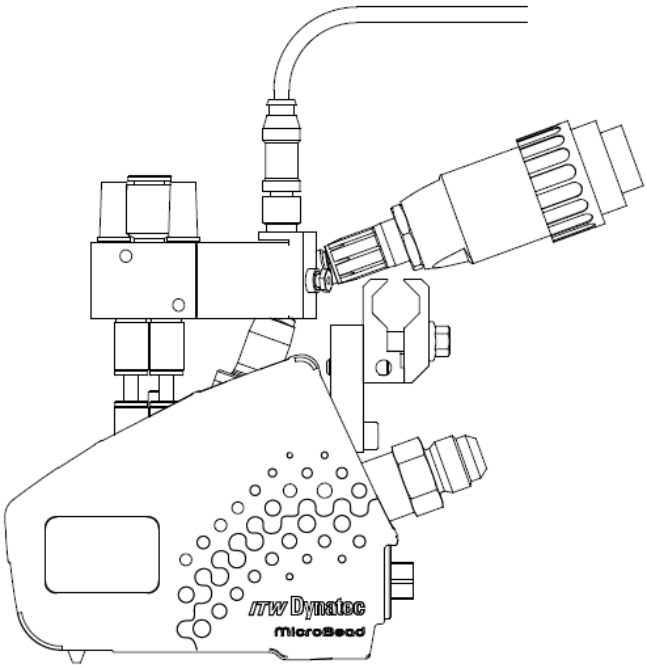
PN	Description	Incl. RTD sensor and Heater	Qty
114975	**Cable asy 120VAC NOR,** Standard, for 1-module applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110181 Heater cartridge Ø6.5x32mm, 125W, 120V	1
117575	**Cable asy 120VAC NOR,** Water-resistant, for 1-module applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110181 Heater cartridge Ø6.5x32mm, 125W, 120V	1
117036	**Cable asy 120VAC NOR,** Standard, for 2-modules applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 117026 Heater cartridge Ø8x40mm, 200W, 120V	1
117576	**Cable asy 120VAC NOR,** Water-resistant, for 2-modules applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 117026 Heater cartridge Ø8x40mm, 200W, 120V	1
110065	**Cable asy 240VAC NOR,** Standard, for 1-module applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110180 Heater cartridge Ø6.5x40mm, 155W, 240V	1
117573	**Cable asy 240VAC NOR,** Water-resistant, for 1-module applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 110180 Heater cartridge Ø6.5x40mm, 155W, 240V	1
117040	**Cable asy 240VAC NOR,** Standard, for 2-modules applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 106448 Heater cartridge Ø8x40mm, 200W, 240V	1
117574	**Cable asy 240VAC NOR,** Water-resistant, for 2-modules applicator	PN N07864 RTD temp. sensor NI120, Ø .1875X1.25L (Ø 4.76x31.75mm) PN 106448 Heater cartridge Ø8x40mm, 200W, 240V	1

8.7 Optional Mod-Plus BF Adapter Plate Kit, PN 117533

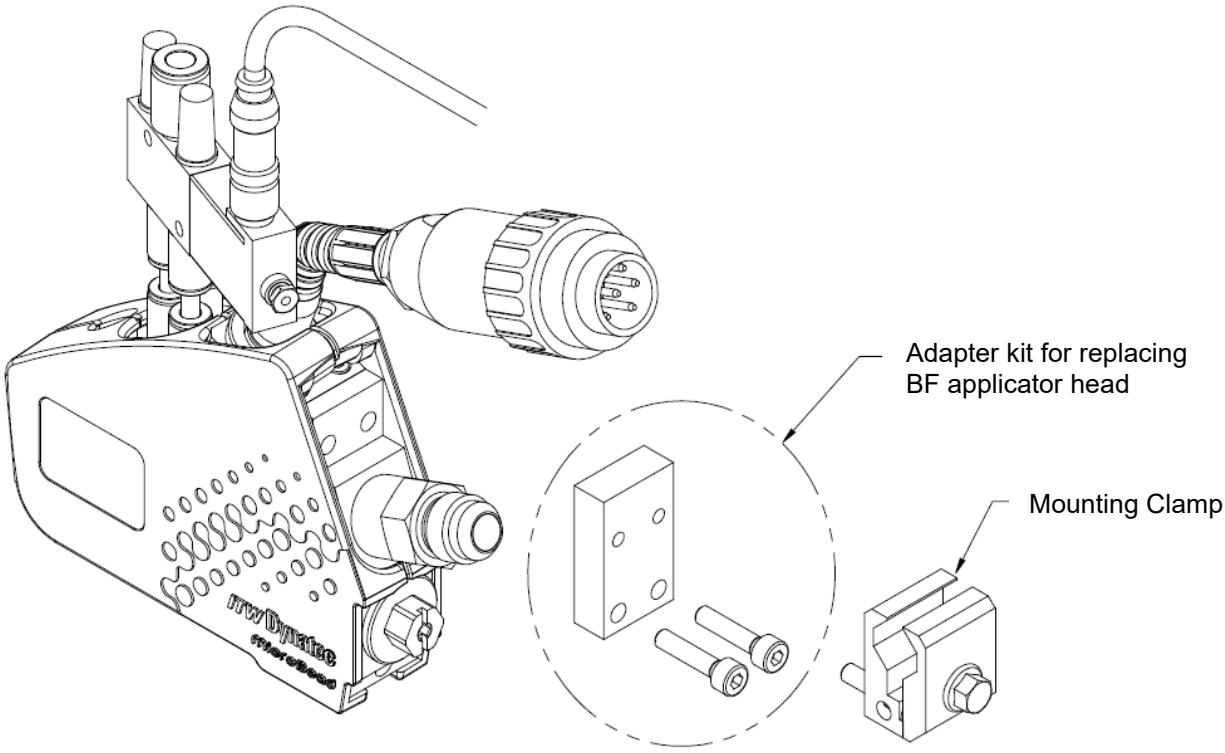
This kit's adapter plate and screws enables precise replacement of a Mod-Plus BF applicator with a BF Microbead applicator. It allows the replacement nozzle tip to be positioned in a nearly identical location as the old nozzle tip.



Mod-Plus BF Applicator profile



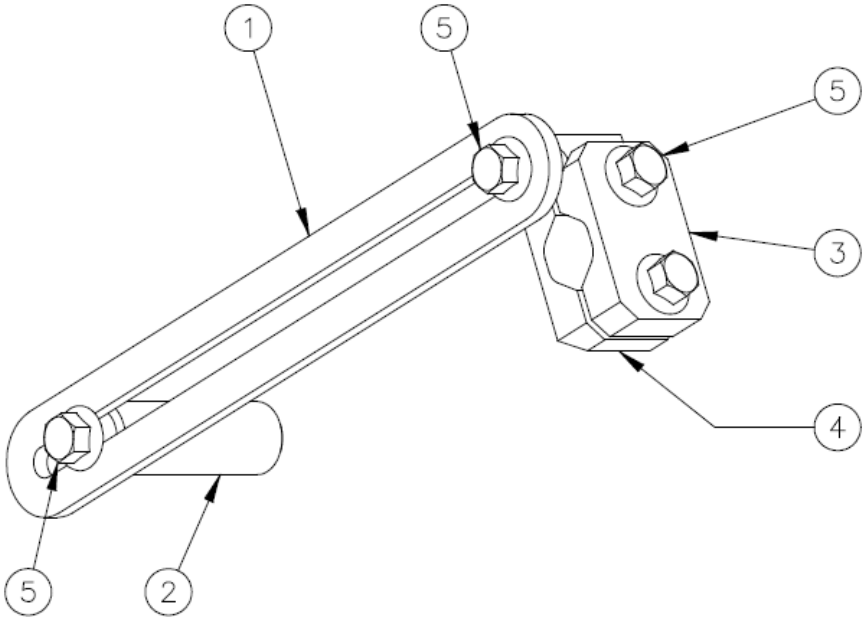
BF MicroBead Applicator profile



8.8 Optional Universal Mounting Bracket Assembly, PN 117064

The Universal Mounting Bracket Assembly has the flexibility to mount any MicroBead applicator.

Item	PN	Description	Qty
1	117027	Arm, flex mount	1
2	117028	Stud, flex mount	1
3	118572	Bar clamp pressure plate	1
4	118571	Bar clamp base plate	1
5	117060	Screw with flange M5xx16mm	4



8.9 Push-in Air Fitting, PN 118053

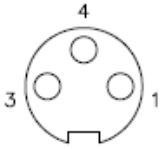
The pneumatic fitting enables one solenoid to control two modules.

8.10 Solenoid Extension Cable, PN 118507

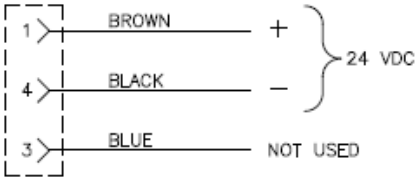
The three meter (9.84 ft) extension cable has a M8 straight male connector on one end and a M8 straight female connector on the other end.

8.11 Solenoid Cables

- PN 117532 Solenoid Cable, Flying Leads
  Schematic:



Contact layout
Connector end



Circuit diagram

- PN 117549 Solenoid Cable for DPC/ TPC
- PN 117550 Solenoid Cable for DY2008

8.12 Recommended Spare Part Lists

As a general rule, we recommend that you keep on hand the same quantity of following parts as listed *on the BOMs under Ch.7, the Optional Parts under Ch.8 and your order:*

- *Modules*
- *Nozzles*
- *Heaters*
- *RTDs, Temperature Sensors*
- *O-rings, Sealings*
- *Filters*
- *Kits*

8.12.1 Heaters and RTD temperature sensors

NOTE: Heaters and RTD temperature sensors are located in the Cable Assemblies. Choose one of the cable assemblies according to your applicator. See sales order and Ch.8 Ordering Guide.

8.12.2 BF MicroBead Applicator with 1 Module

Item	PN	Description	Qty
5	117012	Filter cap	1
6	N00183	O-ring 016	1
7	-	**Micro Optima Module** (see sales order and Ch.8 Ordering Guide)	1
13	117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB	1
14	-	**Nozzle** (used only with Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) (see sales order and Ch.8 Ordering Guide)	1
17	-	**Filter cartridge** (see sales order and Ch.8 Ordering Guide)	1
23	-	**Cable assembly** (see sales order and Ch.8 Ordering Guide) (RTD temp. sensor and heater cartridge are part of the Cable assembly)	1
27	N00179	O-ring 012	1
28	N00182	O-ring 015	1
32	N00177	O-ring 010	1
33	001U002	Silicone lube, 5.3 ounce (157 ml) resealable tube	A/R*
34	107324	Antiseize Compound, 0.5kg container	A/R*
35	117819	Thread locker, adhesive/sealant, green	A/R*

A/R* = As required.

8.12.3 BF MicroBead Applicator with 2 Modules, Single & Separate Control, Standard Mount

Item	PN	Description	Qty for Single Control	Qty for Separate Control
5	117012	Filter cap	1	1
6	N00183	O-ring 016	1	1
7	-	**Micro Optima Module** (see sales order and Ch.8 Ordering Guide)	2	2
12	117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB	1	2
13	-	**Nozzle** (used only with Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) (see sales order and Ch.8 Ordering Guide)	2	2
19	N00177	O-ring 010	1	1
25	-	**Filter cartridge** (see sales order and Ch.8 Ordering Guide)	1	1
27	-	**Cable assembly** (see sales order and Ch.8 Ordering Guide) (RTD temp. sensor and heater cartridge are part of the Cable assembly)	1	1
30	N00181	O-ring 014	1	1
31	N00182	O-ring 015	1	1
33	N00179	O-ring 012	1	1

8.12.4 BF MicroBead Applicator with 2 Modules, Single & Separate Control, Pivot Mount

Item	PN	Description	Qty for Single Control	Qty for Separate Control
5	117012	Filter cap	1	1
6	N00183	O-ring 016	1	1
7	-	**Micro Optima Module** (see sales order and Ch.8 Ordering Guide)	2	2
12	117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB	1	2
13	-	**Nozzle** (used only with Adjustable Micro Optima Module PN 7050 (EMEA PN 50.M7050.100) (see sales order and Ch.8 Ordering Guide)	2	2
18	N00177	O-ring 010	1	1
22	-	**Filter cartridge** (see sales order and Ch.8 Ordering Guide)	1	1
24	-	**Cable assembly** (see sales order and Ch.8 Ordering Guide) (RTD temp. sensor and heater cartridge are part of the Cable assembly)	1	1
27	N00181	O-ring 014	1	1
28	N00182	O-ring 015	1	1
29	N00179	O-ring 012	1	1

8.12.5 Pivot Mount Kit, PN 117065

Item	PN	Description	Qty
4	N00175	O-ring 008	2
5	N00173	O-ring 007	2
7	N00178	O-ring 011	1
8	N00177	O-ring 010	1

8.12.6 Lubricants and Fluids

Item	PN	Description	Qty
	001V061	Heat transfer compound, 2.0 ounce (59 ml) container	1
	001V078	High-temp lube, TFE, Krytox, 0.5kg container	1
	108700	High-temp lube, TFE Krytox, 0.25 ounce (7.4 ml) single use tube	1
	107324	Antiseize Compound, 0.5kg container	1
	001U002	Silicone lube, 5.3 ounce (157 ml) resealable tube	1
	108689	Silicone lube, 0.25 ounce (7.4 ml) single use tube (tube not resealable)	1
	N02937	Thread Sealant, 16 ounce (473 ml) container	1
	L15653	Kit, Flushing Fluid, 1 gallon (3,78 l) container	1
	117819	Thread locker, adhesive/sealant, green	1
	106374	Thread locker, adhesive/sealant, blue	1

Chapter 9
Appendix

9.1 Air Filter and Regulator Kit for Applicators, PN 100055

ITW Dynatec applicators require compressed air for needle actuation. Air Filter and Regulator Kit (PN 100055) is available to provide filter regulator, tubing and fittings for one or more applicators.

In addition to the kit, a solenoid valve with voltage that matches the output voltage of the electrical control device must be selected for the application.

Use following solenoid valve:

PN	Solenoid Valve / Voltage
117074	Solenoid valve, 4-way, 24VDC, M5, MAC44, MB

9.2 Installation Notes for Air Filter and Regulator Kit

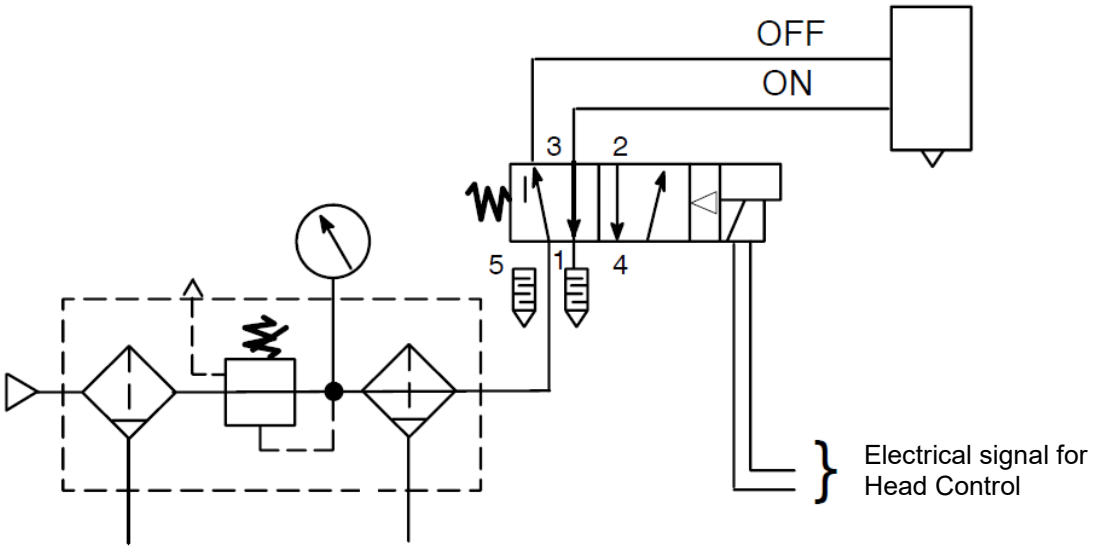
1) Compressed air for applicator head operation must be clean, dry and oil free.

2) Operation of more than two applicator heads by one kit may require additional lines, tee-fittings and solenoid valves not supplied in one kit.

3) To provide identical operation of more than one head, air line circuits from solenoid valves to heads should be the same length and contain similar fittings.

4) To minimize applicator response time, minimize length of the air line circuits from the solenoid valve(s).

9.3 Pneumatic Drawing for Head Air Control



9.4 Air Filter and Regulator Kit, PN 100055

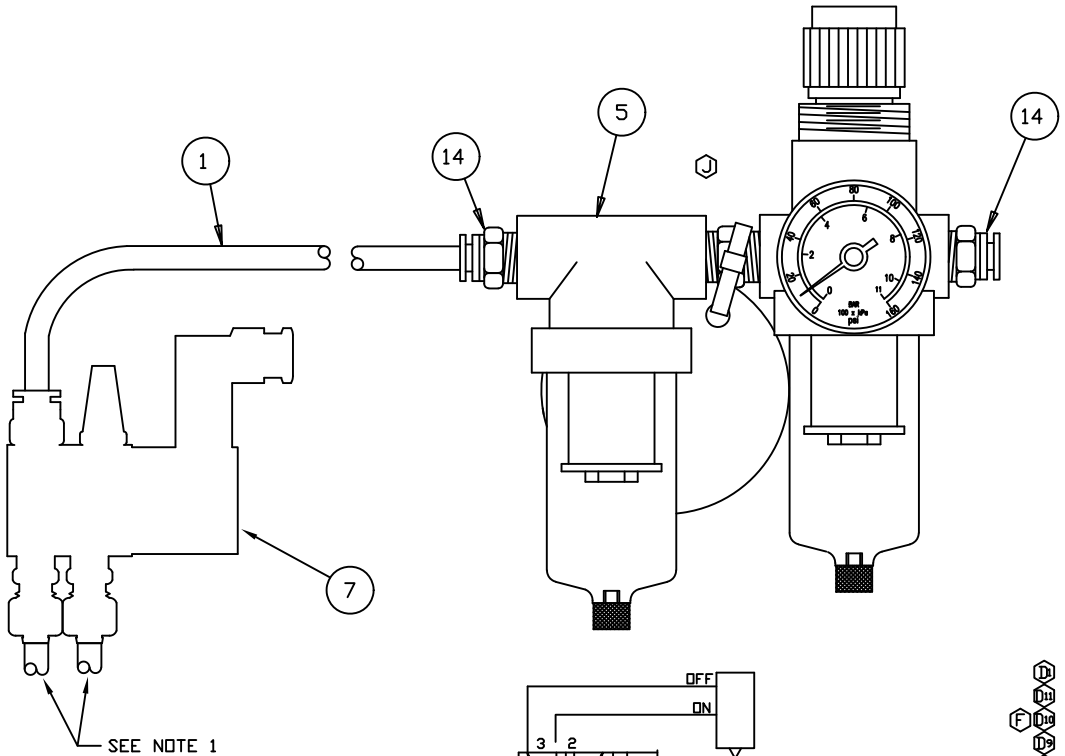
DWG. NO. 100055 SH. 1 REV. K

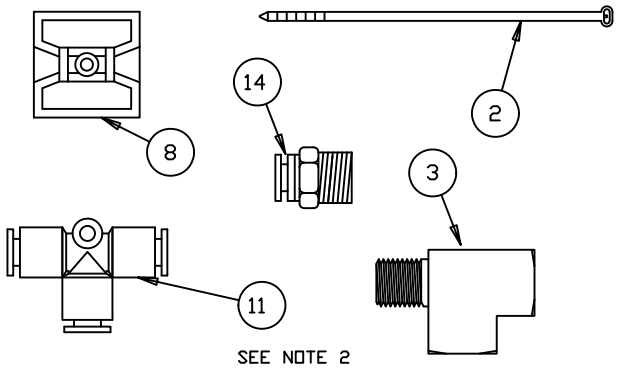
REVISIONS

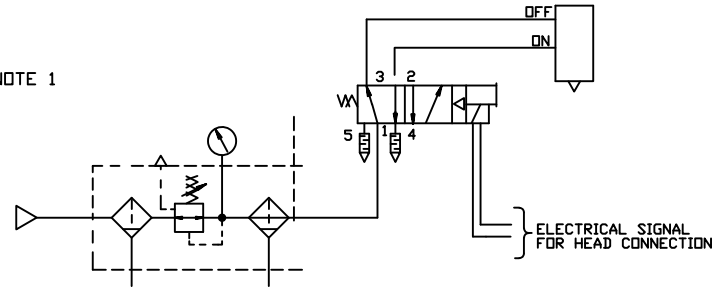
REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
02163	G	ADDED ITEM 4	10.14.02	BB	
02584	H	ITEM 5 WAS 100380	10.30.02	BB	
02640	J	CORRECT VIEW OF FILTER	1.31.03	BB	
E436	K	SHOW ITEM 14 AS SPARE; ADD NOTE 2	07.09.19	JC	

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
	A	ORIGINAL RELEASE	04.22.94	CN	
	B	REQ. VALVE WAS 100041	05.10.94	CN	
	C	N06438 WAS N07677, QTY WAS 20FT 100380 WAS N02774 ITEM 6 WAS 100081 ITEM 12 WAS N01067	07.08.94	CN	
	D	1. WAS N02535 2. QTY WAS 20; 3. WAS N00754 4. WAS N02745; 5. WAS VLV, SOL 6. QTY WAS 5; 7. WAS N06412 8. WAS N06435; 9. WAS N00093 10. QTY WAS 3; 11. WAS N00092	08.26.94	CN	
	E	QTY WAS 5	01.12.95	JT	
00095	F	ITEM 14 WAS QTY 1, ADDED ITEM 3	2.10.00	BB	







PNEUMATIC DIAGRAM FOR A-HEAD & S-HEAD CONTROL

(24VDC)

NOTE:

1. AIR LINES TO HEAD ARE TO BE CUT TO 3.5-4.0 INCHES LONG.
2. BAG ALL LOOSE ITEMS WITH FILTER/REGULATOR ASSY AND MARK WITH ITW DYNATEC PART NUMBER FOR CUSTOMER USE.

ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
16				
15				
14	N06430	3	EA	FTG,CONN,M,BRS
13				
12				
11	N06504	1	EA	FTG,TEE,UNION,BRS,PUSH-IN
10				
9				
8	N04264	3	EA	CABLE TIE ANCHOR, ADH BKD
7	REQ. VALVE ASSY	1	EA	ASY,VLV,SOL
6				
5	105610	1	EA	FLTR,ASY,A/C
4	100055-REF	1	REF	DWG ASSY INSTR
3	N04531	1	EA	FTG,TEE,STREET,#04
2	N00318	10	EA	CABLE TIE,.09X3.62 LG WYL
1	N06438	10	FT	TUBING,NYLON,.250D

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX±.03 .XXX±.010 ANGLES ±.5°

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

USED ON

NEXT ASSY.

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	C.NEVILLS	4.22.94
CHECKED	JCZ	4.22.94
APPROVED		

ITW Dynatec
HENDERSONVILLE, TN

U/M EA

KIT,FILTER,COALES

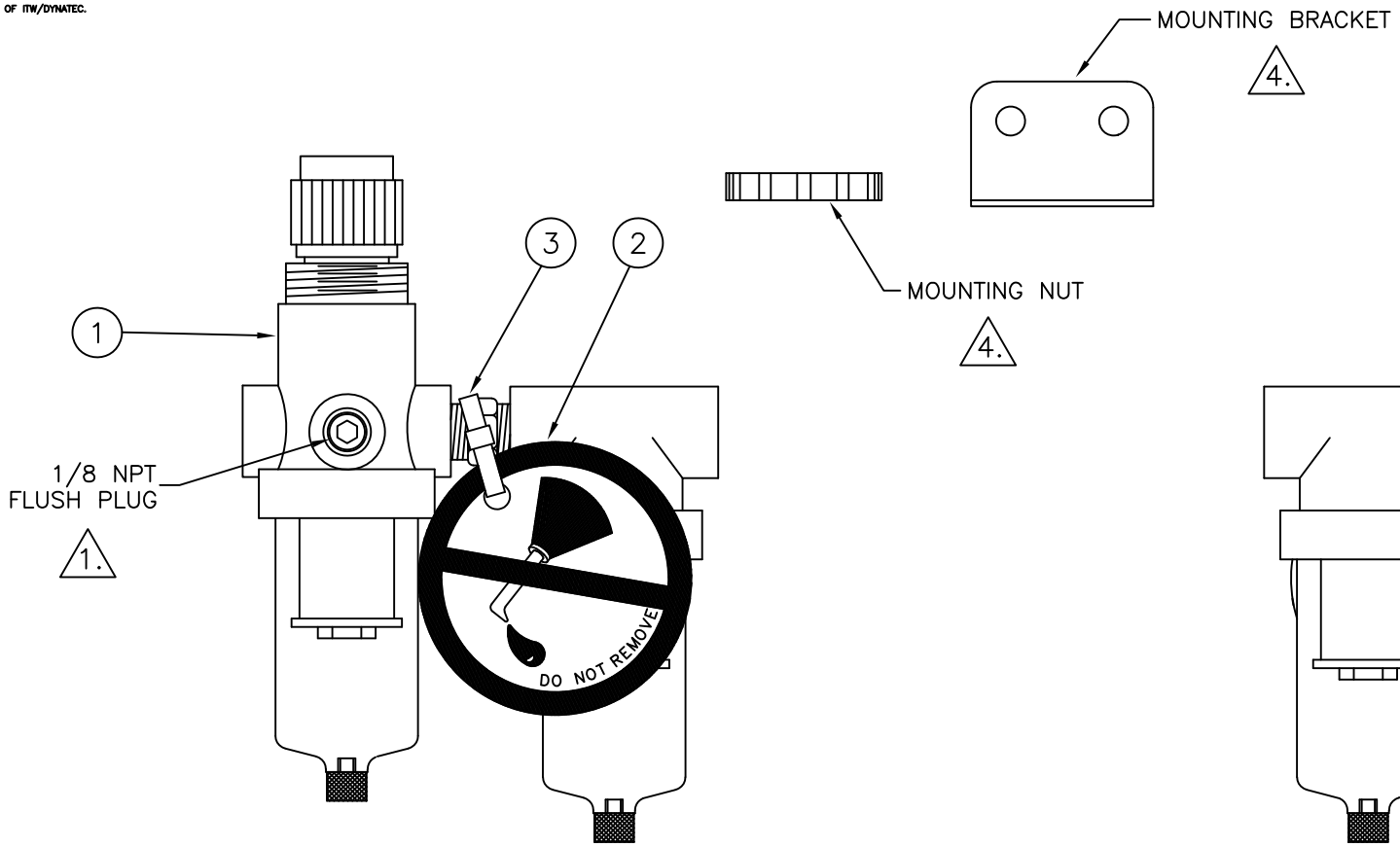
STATUS P

SOURCE P

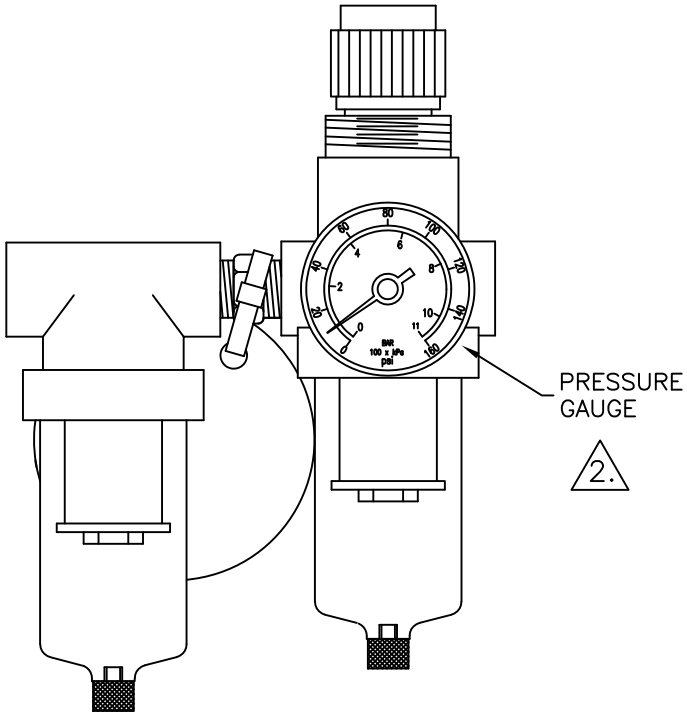
SIZE C DWG. NO. 100055 REV. K GROUP 00

SCALE 1:1 CAD DRAWING SHEET 1 OF 1

REVISIONS				
REV	DATE	DESCRIPTION	REF DOC	BY
A	2.26.98	ORIGINAL RELEASE	N97062	JCZ
B	4.10.02	ITEM 2 WAS 105607	02196	BB
C	10.30.02	DELETED ITEMS 4-9, REVISED NOTES	02584	BB
D	10.14.09	ITEM 3 WAS 048J008	09290	BB
E	26JUL19	NOTE 1 DETAILED FLUSH PLUG INSTALL, NO LONGER NECESSARY	ECN 471	ALM



BACK VIEW



FRONT VIEW

E NOTES:

1.

2. INSTALL GAUGE WITH FACE ORIENTATION AS SHOWN. PLACE TEFLON TAPE ON THREADS PRIOR TO ASSEMBLY.

3. ATTACH THE "DO NOT OIL" TAG (ITEM 2) TO THE FILTER/REGULATOR ASSY USING THE CABLE TIE (ITEM 3).

4. MOUNTING NUT AND BRACKET ARE SUPPLIED WITH FILTER/REGULATOR ASSY (ITEM 1) AND MAY OR MAY NOT BE USED ON ASSEMBLY LINE. IF NOT USED, BAG WITH FILTER/REGULATOR ASSY AND MARK WITH ITW DYNATEC PART NUMBER FOR CUSTOMER USE.

ITEM	PART NUMBER	QTY	U/M	DESCRIPTION
3	N00318	1	EA	CABLE TIE,.09X3.62 LG WY
2	103053	1	EA	TAG,OIL FREE
1	100380	1	EA	FLTR/REG ASY,COALESCING

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX±.03 .XXX±.010 ANGLES ±.5

USED ON: DYNAMELT & DYNAMINI

NEXT ASSY.: —

DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

APPROVALS	DATE
DRAWN JCZ	2.26.98
CHECKED JCZ	2.26.98

COMPUTER DESCRIPTION(24 CHARACTERS): FLTR/REG AS,DMS/DMIN

ITW Dynatec
HENDERSONVILLE, TN

FILTER/REGULATOR ASSEMBLY

SIZE	DWG. NO.	REV.
C	105610	E

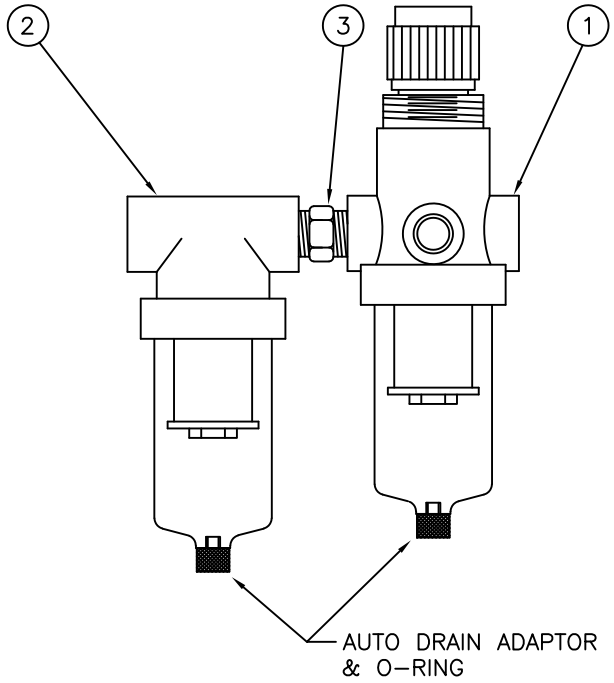
SCALE 1:1 | CAD DRAWING | SHEET 1 of 1

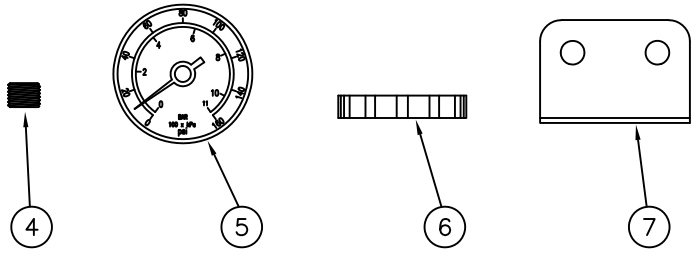
U/M: EA
STATUS: A
SOURCE: G
GROUP: 20

DWG. NO.	SHT.	REV.
100380	1	C

REVISIONS

REL.	REV.	DESCRIPTION	DATE	BY	APPROVED
02584	C	REVISED AND REDRAWN	10.30.02	BB	





ITEM	PART NUMBER	QTY.	U/M	DESCRIPTION
7	–	1	EA	BRACKET, MOUNTING
6	–	1	EA	NUT, MOUNTING
5	–	1	EA	GAUGE, PRESSURE
4	–	1	EA	PLUG, FLUSH, 1/8 NPT
3	072X228	1	EA	FITTING, PIPE NIPPLE, 1/4 NPT
2	100081	1	EA	FILTER, COALESCING, 1/4 NPT
1	N02774	1	EA	FILTER/REGULATOR, 1/4 NPT

PARTS LIST

NOTES:

1. VENDOR: FLUID POWER; VENDOR P/N CQ491
2. ITEMS 4–7 ARE SUPPLIED UNASSEMBLED AND BAGGED WITH THE FILTER/REGULATOR ASSEMBLY.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX±.010 .XXX±.005 | ANGLES ±.5

USED ON

NEXT ASSY. 105610

DO NOT SCALE DRAWING

FOR MACHINING STANDARDS AND SYMBOLS, SEE ITW/DYNATEC SPEC. A05800

APPROVALS	DATE
DRAWN BB	10.30.02
CHECKED	

COMPUTER DESCRIPTION(24 CHARACTERS)
FLTR/REG ASY,COALESCING

ITW Dynatec
HENDERSONVILLE, TN

FILTER/REGULATOR ASSEMBLY, COALESCING

U/M EA | STATUS P | SOURCE | GROUP

SIZE B | DWG. NO. 100380 | REV C

SCALE 1:1 | CAD DRAWING | SHEET 1 of 1

Revisions

Revision	Page/Ch.	Description
Rev.1.22	-	New manual layout.
Rev.6.23	P.1	Manual language added.
	Ch.1	Declaration of Conformity updated.

ITW Dynatec Service Parts and Technical Service:

AMERICAS

ITW Dynatec
31 Volunteer Drive
Hendersonville, TN 37075
USA
Tel. +1.615.824.3634
info@itwdynatec.com
service@itwdynatec.com

EUROPE, MIDDLE EAST & AFRICA

ITW Dynatec
Industriestrasse 28
40822 Mettmann
Germany
Tel. +49.2104.915.0
info@itwdynatec.de
service@itwdynatec.de

ASIA PACIFIC

ITW Dynatec
No. 2 Anzhi Street,
SIP, Suzhou, 215122
China
Tel. +86.512.6289.0620
info@itwdynatec.cn
service@itwdynatec.cn

ITW Dynatec
Tsukimura Building 5th Floor
26-11, Nishikamata 7-chome
Ota-ku, Tokyo 144-0051,
Japan
Tel. +81.3.5703.5501
info@itwdynatec.co.jp
service@itwdynatec.co.jp